AMERICAN GAS JOURNAL

88th YEAR | SEPTEMBER 1946 | VOL. 165 NO. 3

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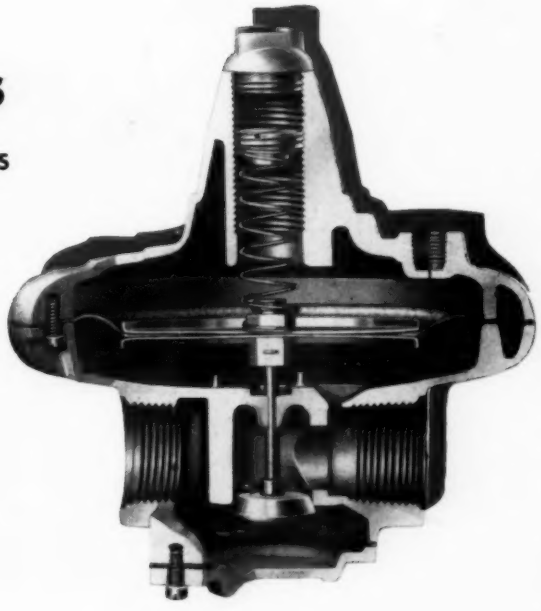

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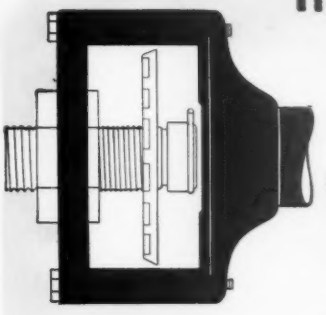

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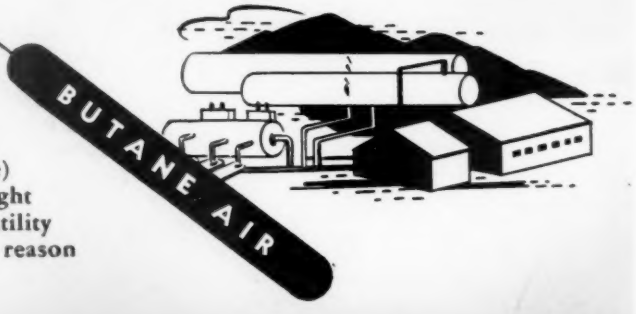

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AMERICAN GAS JOURNAL, September, 1946. Vol. 165, No. 3. Published monthly by American Gas Journal, Inc., at 34 North Crystal St., East Stroudsburg, Pa., Executive and Editorial offices at 53 Park Place, New York 7, N. Y. Entered as second-class matter October 7, 1928, at the post office at East Stroudsburg, Pa., under the Act of March 3, 1879. Printed in U.S.A.

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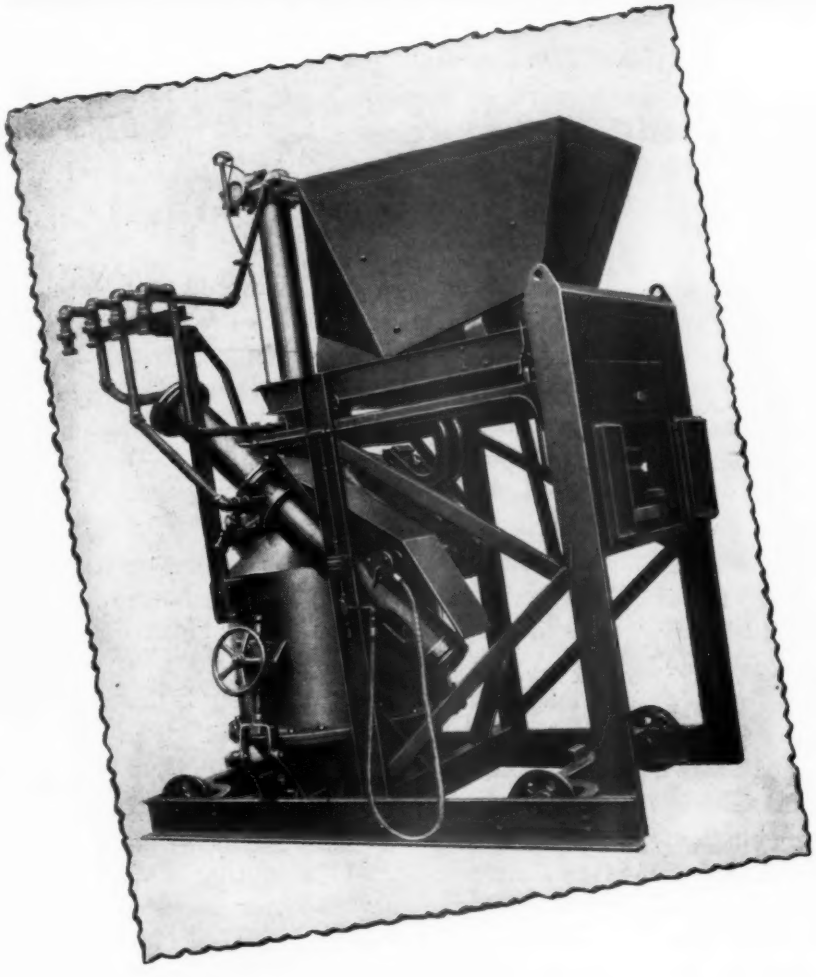

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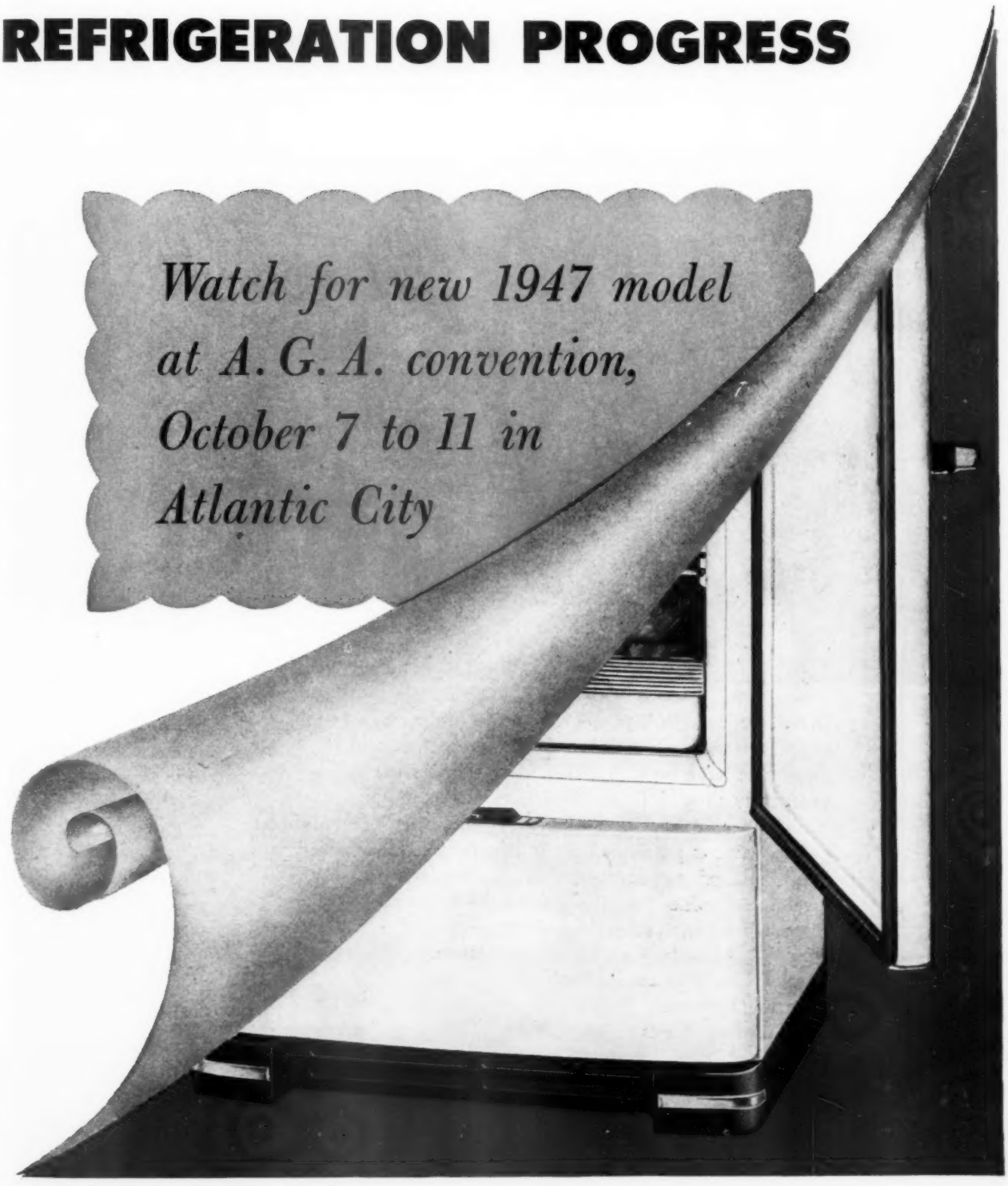

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In connection with a recent expansion program in a large midwestern city, more than ten miles of cast iron mechanical joint pipe have been installed for high pressure gas transmission mains. Diameters ranged from 16-inch to 30-inch.

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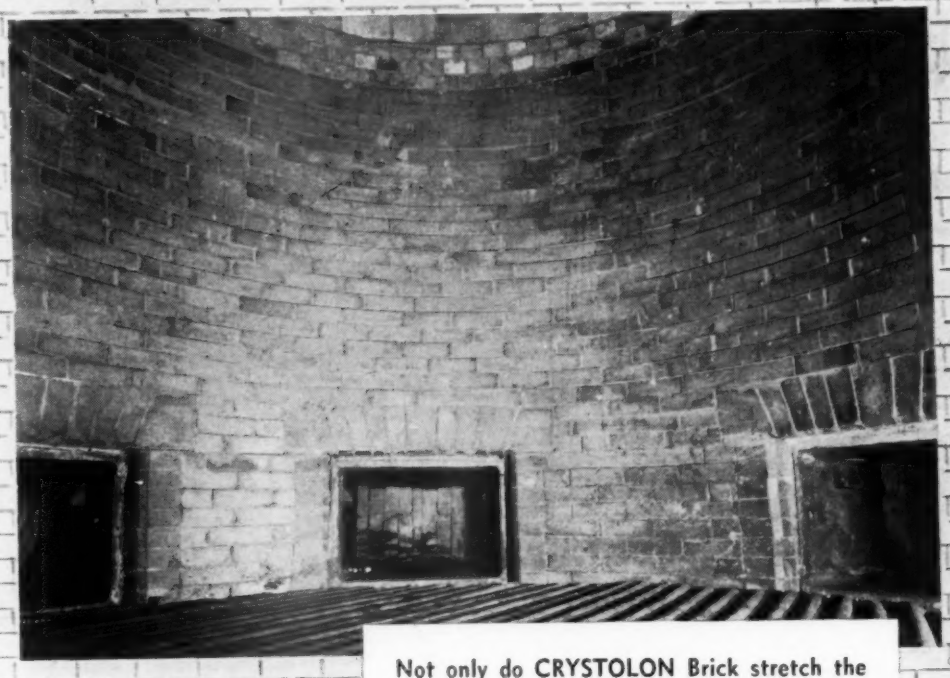

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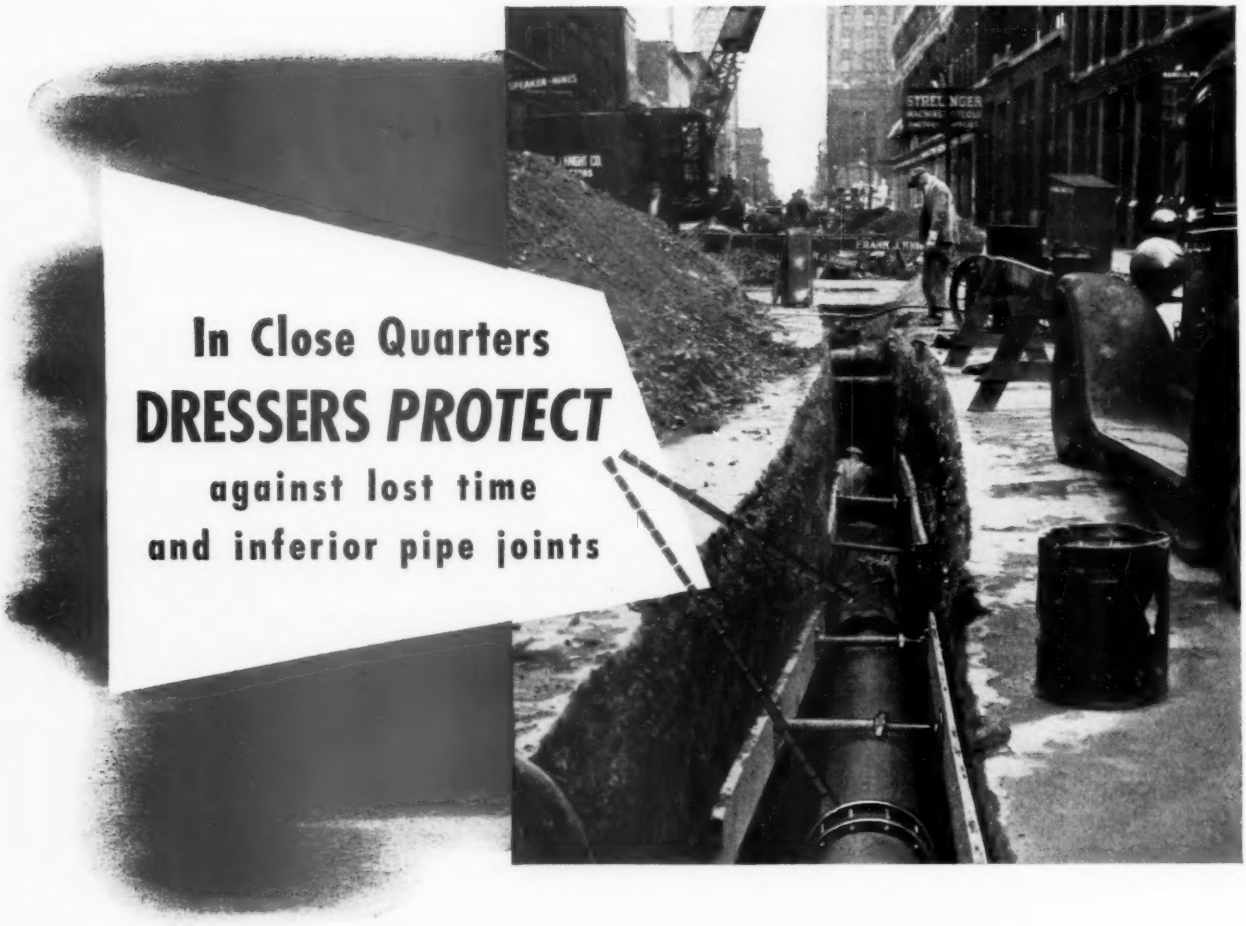

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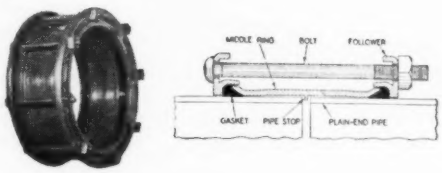

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VOLUME 165
NUMBER 3

AMERICAN GAS JOURNAL

ESTABLISHED 1859

WHOLE
NUMBER 3871

SEPTEMBER 1946

PUBLISHED MONTHLY BY
AMERICAN GAS JOURNAL, Inc
53 Park Place, New York 7

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Copyright, 1946, American Gas Journal, Inc.

Subscription $2.00 per year U.S.A.; $3.00 Canada; $4.00 Foreign. Single copies, 25 cts.

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SEPTEMBER
1946

AMERICAN
GAS JOURNAL

Volume 165
No. 3

The World's Largest Continuous Gas-Fired Enameling Furnace

By
Fred A. Herr

A FULL-MUFFLE, U-type, 90-foot-long gas-fired continuous enameling furnace is among the equipment pieces installed as part of the expansion program of the Smoot-Holman Co. of Inglewood, Calif., manufacturers of industrial lighting equipment and stamped steel plumbing fixtures.

The firm has specialized in designing lighting fixtures for commercial and industrial use for the past 30 years. Its present production consists of lighting fixtures and reflectors of various types, porcelain enamel floodlights, fluorescent equipment, stamped refrigerator parts, sinks and lavatories. The various coatings of enamel which are applied to manufactured items are vitrified in the new enameling oven and in two natural gas box furnaces which the firm uses as supplementary facilities.

In addition to its size, which makes it the largest U-type installation of its kind in the world at this time, the enameling furnace has attracted wide interest in industrial circles in general and the gas and oil industries in particular. This is due to a revolutionary oven feature which makes possible for the first time a practical change-over from natural gas to oil as furnace fuel in times of gas shortage when the gas companies are obliged to curtail the supplies of surplus industrial gas to factories.

The furnace was designed and built by the Ferro Enamel Corporation of Cleveland, O. It has an overall length of 90 feet. The measurements of the burning chamber are: Length, 18 ft. 8 in.; width, 9 ft. 3 in.; height, 7 ft. 6 in. The porcelain enamel reflectors and other lighting fixture parts which travel through the mammoth oven on a conveyor for vitrifying move a distance of 160 feet in the complete trip, including the preheating and cooling zones.

Rated at 7M Cu. Ft. An Hour

The rated capacity of the furnace is 7,000 cubic feet of natural gas an hour. Its maximum is 9,000 cubic feet but it usually is cut down to 6,000 cubic feet an hour on high fire for working purposes.

The enameling portion of the furnace operates at 1,500 degrees Fahrenheit when work is passing through while the temperature in the combustion tunnels usually is about 2,500 degrees. The entrance to the tunnel is equipped with a heat seal installation to recirculate hot air from the furnace and prevent heat loss. The installation is arranged to permit the hot air to be drawn upward into ducts at the furnace mouth and returned to the drying zone.

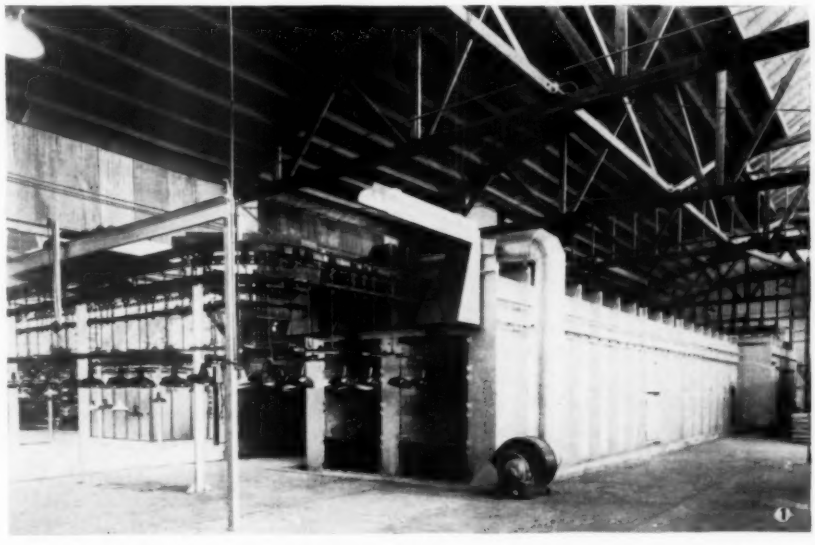


Figure 1: The furnace is a full muffle U-type, gas-fired, except when hooked up to a Petr-O-Fire stand-by oil fueling device (see Figure 2). The furnace is 90 feet long and has a burning chamber 18' 8" long, 9' 3" wide and 7½' high. The gas consumption capacity is 7000 cubic feet per hour and temperatures up to 2500 Deg. F. are attained in the combustion tunnels.

A Heat seal may be noted at the entrance, where hot air from the furnace is recirculated by being drawn through ducts and returned to the drying zone to prevent heat loss.

Dual Fueling System

The dual fuel system of the furnace is the feature which is attracting the attention of industrial engineers, factory production heads and fuel industry leaders in both gas and oil circles. The furnace embodies a combination of gas and oil fuel systems, the latter strictly a standby adjunct, by means of which the firing cycle can be changed from one fuel to the other merely by throwing a toggle switch and without recalibrating instruments or controls.

The furnace is primarily a gas burner. William Holman, general manager, and Gale Thomas, engineer, of the Smoot-Holman Co., declared gas is the more economic fuel for the company's production purposes, for which reason the firm fires the furnace with gas except at times when the Los Angeles gas companies are forced to curtail supplies of that fuel.

Developed By Gas Co. Engineer

The development of the stand-by oil burning apparatus which permits the furnace to be switched from gas to oil fuel during periods of natural gas shortage was the direct outgrowth of the scarcity of industrial gas during the war years.

The developer and designer of the dual fuel system was Cloid Hammers who for ten years served as an industrial gas engineer for the Southern California Gas Co. of Los Angeles.

Mr. Hammers explained to American Gas Journal that during the decade he was associated with the gas company his work brought him into contact with many of the largest industrial plants in the Southern California area served by the utility firm, which enabled him to observe the changes and trends taking place in the fuel picture.

Before the war precipitated a tremendous increase in industrial expansion in the Los Angeles area, Mr. Hammers explained, gas available to Southern California Gas Co. and Southern Counties Gas Co. was sufficient to supply the domestic heating load and leave ample amounts over which was made available as surplus industrial gas to factories conditional to curtailment, if and when, the gas companies required it for domestic purposes. The curtailment clauses in the surplus contracts were invoked frequently during the war years.

Need for Stand-By Fuel Cited

Mr. Hammers pointed out that most industrial plants in Southern California had equipment designed only for burning gas, which gave them no alternative to shutting down when their gas supply was shut off. This, he said, indicated the need for some form of assistance equipment that could be used to switch over quickly and easily from gas burning to oil burning.

The need for some such device was accentuated by the fact that the ending of the war, with the consequent let down in the wartime pace of production, would not guarantee a more liberal and continuous supply of industrial gas.

Mr. Hammers cited the fact that Southern California's population and industrial growth indicated three years ago that gas supplies available to Los Angeles utilities would not provide industrial gas without periodic curtailments in the postwar period. Substantiating that phase of the situation, he said, is the new 70 million dollar pipeline from the Texas Panhandle dry gas fields to the Los Angeles area which the two Los Angeles gas companies are now building in collaboration with the El Paso Natural Gas Co. to supplement dwindling west coast sources.

The technical problem involved in the development of a practical and reasonably speedy change-over device was the fact that a pre-mix gas flame is a comparatively short and blue flame, whereas oil burns with a long red flame. The problem, Hammers declared, was to develop a method to vaporize oil so that it would burn with a short blue flame comparable to a gas flame.

The device which Hammers developed after several years of experimentation and research has been named the Petr-O-Fire unit. It is now being used as stand-by fuel equipment for three major production operations in the Smoot-Holman plant and, in its present form, represents the results of Hammers' experiments in the field of dual fuel systems.

Smoot-Holman Installs Test Device

The first Petr-O-Fire unit was installed in the Smoot-Holman plant in Inglewood as an out-and-out experiment in 1945. The company frankly admits that it agreed to serve as a "guinea pig" in order to test out the practicability of the apparatus. The first Hammers-developed stand-by unit proved sufficiently effective after a thorough test that the company installed two others which it uses to switch from gas to oil operation on a gas-fired drying tunnel and gas-heated solution tanks in its metal processing department.

The original Petr-O-Fire unit serves a 60-foot-long drying tunnel which is used to dry sprayed enamel parts before they are moved into the furnace. A second unit is installed outside the metal pickling room as auxiliary oil fuel for heating acid, water and drying tanks when gas, the fuel ordinarily used for that purpose, is unavailable. The third and last unit is hooked up to the huge enameling furnace. This unit is somewhat larger than the others but functions similarly.

Method of Operation Explained

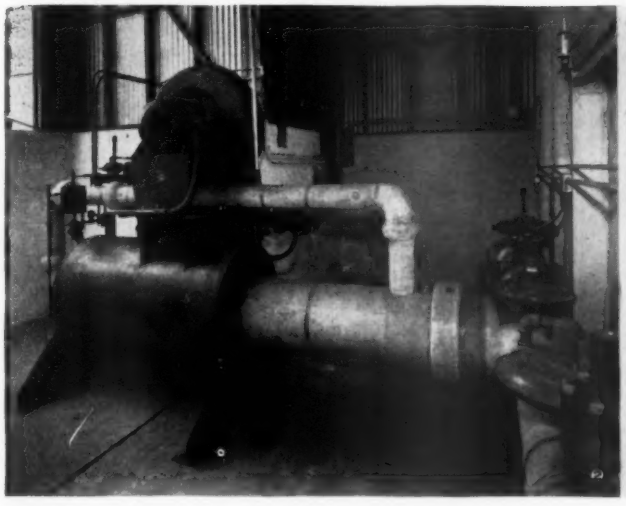
The most recently installed Petr-O-Fire dual fuel unit is set up adjacent to the U-type enameling furnace previously described. The installation consists of a blower, air heater, venturi mixer and zero gas governor, with an attached liquid fuel metering chamber.

The system permits the maintenance of identical temperatures on either the oil or gas cycles. Combustion and flame characteristics, Hammers declared, on the oil cycle are similar to those of pre-mix natural gas. Combustion and flame characteristics, he said, are identical with either type fuel.

On the oil cycle, however, the air is preheated in order to assure complete vaporization of that fuel. The blower is mounted over a steel cylinder which serves as the air-preheating chamber when oil is being used.

The switch on the control panel is turned from "Gas" to "Oil" operation when the change-over from natural gas to oil fuel is desired. This opens a solenoid gas valve and actuates a spark plug which ignites a gas burner in the air heater. Air delivered by the blower to the heater is heated up to between 525 and 575 degrees Fahrenheit, then passes through the venturi mixer. The natural gas then is automatically shut off from the proportional mixing chamber and replaced by oil, which becomes volatilized and mixed with the heated air stream.

The resultant volatilized fuel-air mixture passes through an insulated manifold leading to the point of firing in the adjacent enameling furnace. The burners in the furnace



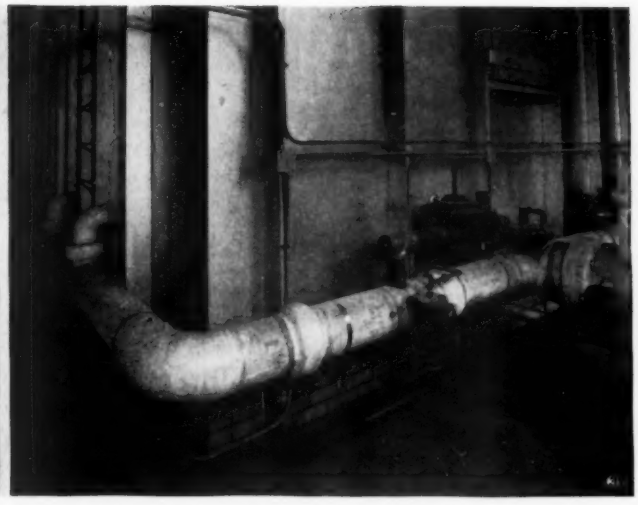


Figure 2: This shows the Petr-O-Fire unit installed experimentally to determine its effectiveness as a switch-over oil burner during gas shortages, or when the firm is denied surplus industrial gas.

Visible are the major parts—the blower (upper left), mounted above an air pre-heating chamber (lower left), a venturi mixer (far right), and a zero gas governor. The unit can be switched from gas to the oil cycle by means of a toggle switch.

Figure 3: The heating equipment attached to the U-type enameling furnace is shown in this photograph. The burners branching off the fuel supply manifold are visible (left). Three similar burners lead off a manifold on the other side of the furnace.

The proportional mixing chamber is in foreground center, with the zero governor and gas-pressure regulator used on the gas cycle mounted above it. Visible below is the float chamber used with the Petr-O-Fire unit (see Figure 2) when the oil cycle is "on." A small pipe extends from the top of the float chamber to the high pressure side of the mixing chamber. There is an identical installation on the other side of the large manifold.

are designed to burn pre-mixed air and gas fuel, as are also those in the drying tunnel.

Furnace Temperatures Up to 2800 Deg. F.

Furnace temperatures in the muffle chamber of the enameling furnace up to 2800 degrees Fahrenheit can be maintained, Hammers declared, on either the oil or gas cycle.

On the oil cycle the system is designed to burn various types of petroleum fuel. The Smoot-Holman Company, during extreme gas shortages, has experimented with kerosene, stove oil, naphtha, distillate and various cheaper grades of gasoline, but the costs involved made the return to natural gas desirable whenever gas was obtainable in sufficient quantities.

Pickling and Pre-Cleaning

Gas plays a highly important part in the production processes of the company. In addition to its use, whenever available, in the big new enameling furnace, it is used for heating a drying tunnel, enamel solution tanks, and acid solution, hot water rinse and drying tanks in the firm's metal application and pickling departments.

Before the enamel coatings are applied, the manufactured articles must be thoroughly cleaned to remove impurities that might mar the final coat of enamel or prevent proper adhesion of the enamel deposits.

The pre-enameling cleaning and processing facilities of the pickling and cleaning department consist of five large dip tanks and a dryer tank. Each tank is four feet high, four feet wide and 10 feet long. Some are equipped with immersion tube gas burners to maintain the solutions and rinse water at proper working temperature.

The parts to be cleaned are placed in a monel (acid resisting) wire basket which is sized to permit complete immersion in the tanks. The basketed metal parts are dipped, successively, in an alkali solution tank for removal of grease from the surface; a clear water tank for rinsing; a 7 per cent sulphuric acid solution for pickling; a cold water rinse tank; and finally into a soda dip tank. From the soda dip, the parts go into a dryer tank, which is heated by bottom gas burners, for quick drying.

The Smoot-Holman Co. has one of the three Petr-O-Fire units installed outside the pickling room door as stand-by equipment for this department when gas is unavailable.

Three Trips Through Furnace

Three successive enamel coatings are applied to the articles after they leave the pickling room. The deposits are either sprayed on with liquid spray guns in enamel booths, or applied by dipping the parts in gas-heated enamel solution tanks.

The practice is to apply a ground coating of enamel by dipping or spraying, depending upon the size of the item. If the 2x6x1′ tanks will not accommodate a part, it is handled in the spray booths. The tanks are designed to permit complete immersion in the liquid enamel of reflectors and other small items.

After the first spray or dip, the parts are attached to wire hangers suspended from a traveling conveyor and carried through a drying tunnel and thence through the U-type enameling furnace. A second coating of enamel is applied when the parts return from the furnace (also by conveyor). A second trip through the drying tunnel and the furnace follows to bake the No. 2 coating, which is followed by a third trip for the final coating.

Furnace Never Shut Down

The length of time the parts are kept in the furnace depends on the fizzure quality of the steel and the thickness of the enamel deposit. Most of the items produced in the plant are made of stamped steel and require about 3½ minutes in the firing zone and a total time in the furnace of about 20 minutes. Cast iron parts are sent through somewhat slower by reducing the speed of the conveyor.

The huge enameling furnace has never been shut down since it was first fired up for its experimental run. Mr. Thomas explained that it takes three days to cool down the furnace and another day to bring

(Concluded on page 50)

Heating by Immersion and Submerged Combustion

By
Charles C. Eeles

Industrial Engineer
The Ohio Fuel Gas Co.,
Toledo, Ohio

TO TELL YOU all I know about Heating by Immersion and Submerged Combustion in the time allotted will be relatively simple but to give this important subject the comprehensive treatment it deserves would require hours. It is our good fortune, however, to have in attendance representatives of a number of companies which manufacture this type of equipment. During the discussion period we can call upon the broad knowledge they have gained from hundreds of actual installations.

Optimum thermal efficiency results when combustion takes place within or below the surface of the solution or liquid to be heated.

Three phases of the problem are of importance to the Industrial Gas Engineer—what are its uses—what equipment is suitable and available—how should such equipment be applied?

Applications

Immersion heating and Submerged Combustion find their principal low temperature applications in the heating of water-base solutions for cleaning, pickling, and washing of metals. Fire tube boilers and water heaters —especially those with horizontal tubes—might likewise be included in this category. As we go up the temperature scale we find Immersion heating used with success and high efficiency for black finishes on steel, deep fat frying, soft metal melting, interrupted quenching, galvanizing, salt bath heating and many other processes. The entire field of radiant tube heating might be included within the bounds of this subject.

Convenience may frequently dictate the use of Immersion heating equipment. When an interrupted quenching unit is in full operation the bath generally requires cooling rather than heating. Forcing cold air through the Immersion tubes with the gas shut off provides a simple means of supplying the required cooling.

Smoke houses have always been difficult to equip with suitable automatic temperature control and ignition safeguards because of the gumming and corrosive effects of the smoke vapors and meat greases. We recently overcame these difficulties by mounting atmospheric Immersion burners outside the houses and firing in through tubes suitable for proper heat distribution.

There are many other ways in which burners designed for Immersion Heating may be applied outside of their regular field to solve perplexing heating problems.

Certain Immersion Heating equipment should properly be designed, sized and installed by its manufacturer. Some, however, can be designed by the Industrial Gas Engineer and installed under his supervision. In the first category are the Kemp, Dewey, Submerged Combustion and similar systems. Each has its own field which may or may not overlap that of others. It is important for the Industrial Gas Engineer to know the applications to which each is best adapted. He must also have a general knowledge of the equipment and its principal characteristics.

Submerged Combustion gives gas the inside track in the pickling field. The flow of hot combustion products passing up through the solution provides the necessary heat, produces highly desirable violent agitation and replaces much of the water lost from the surface by evaporation. Accurate temperature control is possible and the setting can change quickly to accommodate variances in surface condition and type of work. Combustion air continues to flow through the solution even when the controls have the gas shut off. This continuous violent agitation allows the use of somewhat lower temperatures and reduces pickling time as much as 65 to 75 percent. One company using Submerged Combustion for pickling has its tanks equipped with steam coils for standby. During gas shortage periods the combustion air flow is continued for its agitation effect. In sizing their burners, the Submerged Combustion people use a gas input of 8000 Btus. per square foot of liquid surface area per hour for any pickle tank regardless of depth. Under certain conditions this may be reduced to 7000 Btus.

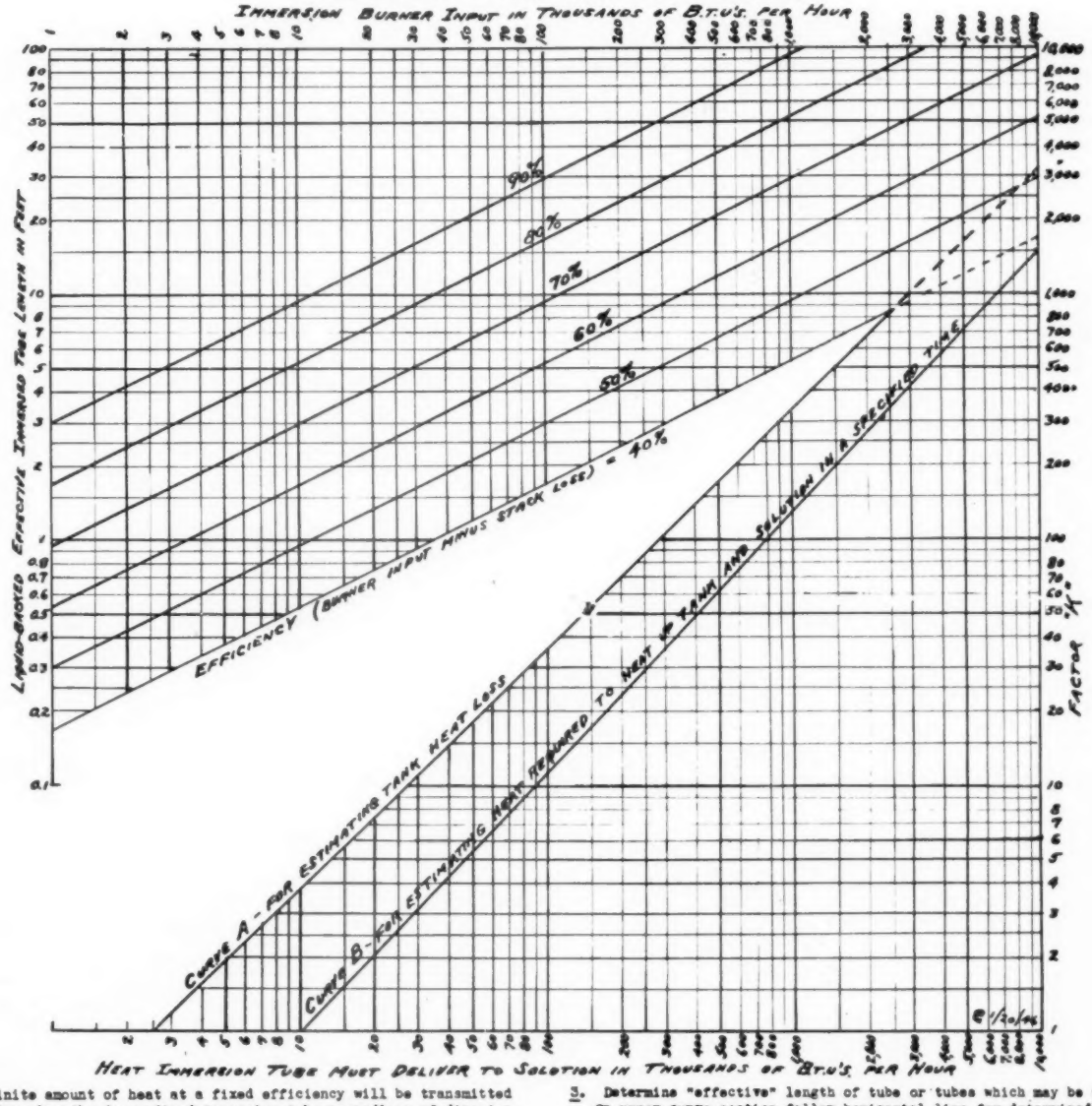
Immersion systems can and have been successfully employed for most solution heating and melting operations when materials with suitable heat and corrosion resistance can be economically utilized for the fabrication of the heat exchanging surfaces. Lead, tin and stereotype melting are important fields in which Immersion Heating with gas is already well established. It is now entering the field of salt baths and should prove one of our most potent weapons for combatting internally heated electric pot furnaces. The suggestion has recently been made that galvanizing tanks be surrounded by a larger tank containing molten lead or salt heated by gas-fired Immersion elements. More even heat distribution and greater pot life should be obtained by this method. The electric industry has made some successful galvanizing tank installations in this manner using lead as the secondary liquid. It should offer equal possibilities for gas.

Systems

The simplest type of Immersion Heating system consists of a pipe coil into which a gas burner fires. Many firms make burners suitable for this purpose and their design is continually being improved. They can be of the atmospheric, blast or sealed-in pressure type. Running the exhaust end of the tube vertically a few feet above the tank generally provides sufficient draft. Where small or exceptionally long coils are used the products of combustion are sucked through by means of eductors or exhaust fans. These burners become extremely useful when they are designed with built-in and accurately machined holders for a pilot burner, a safety pilot element and an ignition spark plug. One of the Industrial Gas Engineer's greatest headaches has been his customer's desire for safe on and off automatic temperature control systems where the equipment and process could justify only moderately priced burners and auxil-

Presented at American Gas Association, Industrial and Commercial Gas Conference, Toledo, Ohio, March 29-30, 1946.

SOLUTION HEATING DATA SHEET


IMMERSION BURNER INPUT IN THOUSANDS OF B.T.U.'S PER HOUR
LIQUID-SIDED EFFECTIVE IMMERSED TUBE LENGTH IN FEET
EFFICIENCY (BURNER INPUT MINUS STACK LOSS) = 90%
90%
80%
70%
60%
50%
CURVE A - FOR ESTIMATING TANK HEAT LOSS
CURVE B - FOR ESTIMATING HEAT REQUIRED TO HEAT UP TANK AND SOLUTION IN A SPECIFIED TIME
K FACTOR
HEAT IMMERSION TUBE MUST DELIVER TO SOLUTION IN THOUSANDS OF B.T.U.'S PER HOUR

1. A definite amount of heat at a fixed efficiency will be transmitted by a given length of gas-fired immersion tube regardless of diameter. This relationship is shown by the upper section of the above curve which is plotted in accordance with the formula:

$$\text{Efficiency} = 20 \log\left[\frac{L^2}{R}\right] + 71$$

Where: Efficiency = thermal efficiency (input minus flue gas loss) in percent
L = effective length of tube (total submerged length measured on center line from burner to foot of stack riser plus 1.1 feet for each elbow or return bend) in feet
R = burner input rate in thousands of Btus. per hour.

2. From tank dimensions, temperature and load determine heat tube must deliver to solution.
The lower section of the above curve may be used in the following manner to obtain a quick estimate of this figure for tanks containing water solutions.
a. For hourly heat loss from bare steel tanks having average depth and no appreciable surface agitation

$$K = \text{Surface area in sq. ft.} \left[\frac{^\circ F \text{ above room temperature}}{100}\right]^2$$

Using this K factor determine approximate hourly heat loss from Curve A.
b. For heating up requirement under same conditions

$$K = \left[\frac{\text{Solution volume in cu. ft.} \times ^\circ F \text{ above room temperature}}{\text{Allowable heating time in hrs.} \times 100}\right]$$

Using this K factor determine approximate hourly heat requirement from Curve B.
c. Where sprays or excessive surface agitation create abnormal evaporation losses a suitable allowance must be added to the heat losses as determined under "a" and "b".

3. Determine "effective" length of tube or tubes which may be used. On upper curve section follow horizontal line for determined "effective" length (L) of tube to point where input (R) x thermal efficiency (E) = heat delivery requirement as determined in step 2.
4. Mechanical suction or high stacks may be used to increase allowable tube length. However, their use to increase input without increase in tube length results in decreased efficiency.
5. Friction increase caused by return bends and els is greater than the additional heat delivery due to the 1.1 foot increase in "effective" length due to these same fittings. Therefore, they should not be used to provide additional heat delivery except with mechanical draft or sealed in premix burners.
6. Short baffled tubes have greater frictional resistance than longer unbaffled tubes having same input and efficiency.
7. Noise: Tube diameter and length have no effect. Input has an effect only when burner is running very low. Restriction of outlet decreases noise and increases efficiency and heat delivery. Sealed in burner has highest noise level. A commercial silencer is helpful on the tube outlet. To reduce resonance equip tube with a tee and dead end tube approximately ½ the length of the main tube.
8. Ratings of Surface Combustion immersion burner inputs with manufactured gas at 3" and natural gas at 6" water column:

Coil Inlet Diameter	Atmospheric Burners (with 5 ft. stack)		Suction Burners (using eductor)		
		Effective		Effective	Eductor
(inches)	M Btu/hr.	Tube Length	M Btu/hr.	Tube Length	size
2	30	10 ft.	80	19 ft.	2"
3	65	14 ft.	160	26 ft.	2"
4	110	16 ft.	300	34 ft.	3"
6	230	21 ft.	650	49 ft.	4"

9. For pickle tanks heated by Submerged Combustion units provide maximum burner capacity equal to 6000 Btu's. per hr. per sq. ft. of liquid surface.

Data sheet by C.C.E., R.L.L., and M.W.S. 1/28/46.

iary equipment. As a result these fully protected Immersion burners have been adapted to a wide variety of applications some of which could hardly be called Immersion Heating.

The greatest use for the Immersion burner is heating solution tanks of various sizes and shapes for cleaning, rinsing, fluxing and coating metals together with the countless other processes employing hot liquids which are common to modern industrial plants.

Early in 1944 the A.G.A. Laboratory released the results of its comprehensive investigation of Immersion Heating by means of round tubes. Some interesting important conclusions were reached. It was shown that for a given burner input the thermal efficiency is governed only by the effective liquid-backed length of the Immersion tube. A formula relating these factors was developed.

$$E = 20 \text{ Log} \left[\frac{L^2 + 71}{R} \right]$$

Where:

E = Efficiency in percent

L = "effective" length of liquid backed immersion tube in feet. It is equal to the actual length in feet measured along the center line of the liquid-backed portion of the tube from the burner to the foot of the stack riser plus an allowance of 1.1 feet for each 90° elbow or return bend.

R = burner input in thousands of Btus. per hour.

The upper section of the curve sheet presented with this report is plotted from this formula.

The same investigation produced figures for the gas-burning capacity of various diameters of standard pipe. In practice, however, they may be greatly exceeded. For that reason it is better to use the capacities given by the burner manufacturers. It is likewise well to stick pretty close to the manufacturers figures for "effective" tube length. Where tubes have high values of "effective" length eductors should be used. If the calculated pressure loss through the tube is over 1.5 inches water column an exhaust fan should be substituted for the eductor.

Burner Requirements

Calls for the burner equipment necessary to heat water-base solution tanks of all types have become so frequent that we made up a "Quicksie" for solving such problems. Two basic figures are required on every solution heating job—first, the heat loss at operating temperature—second, the heat delivery to the solution required to bring it to operating temperature in a specified time.

We found the approximate overall heat loss could be related by means of Curve A to a constant obtained from multiplying the solution surface area in square feet by the square of the temperature rise divided by 100, thus:

$$K = \left[\text{Solution surface area in sq. ft.} \right] \times \left[\frac{\text{°F above room temperature}}{100} \right]^2$$

Similarly the rate at which heat must be delivered to a water-base solution in order to bring it to operating temperature in a specified time may be related by means of curve B to a second K factor obtained from multiplying the solution volume in cubic feet divided by the heating time in hours by the temperature rise divided by 100, thus:

Remember that the figures obtained from the use of the above K factors and shown across the bottom of the chart represent amounts of heat which the Immersion tube must actually deliver to the solution. On the other hand those shown across the top are burner inputs.

If we need an Immersion tube to heat a tank 3 feet by 5 feet having a water-base solution 2.5 feet deep, operating at 170°F and having an allowable heating up time of 4 hours, the calculations would be made as follows:

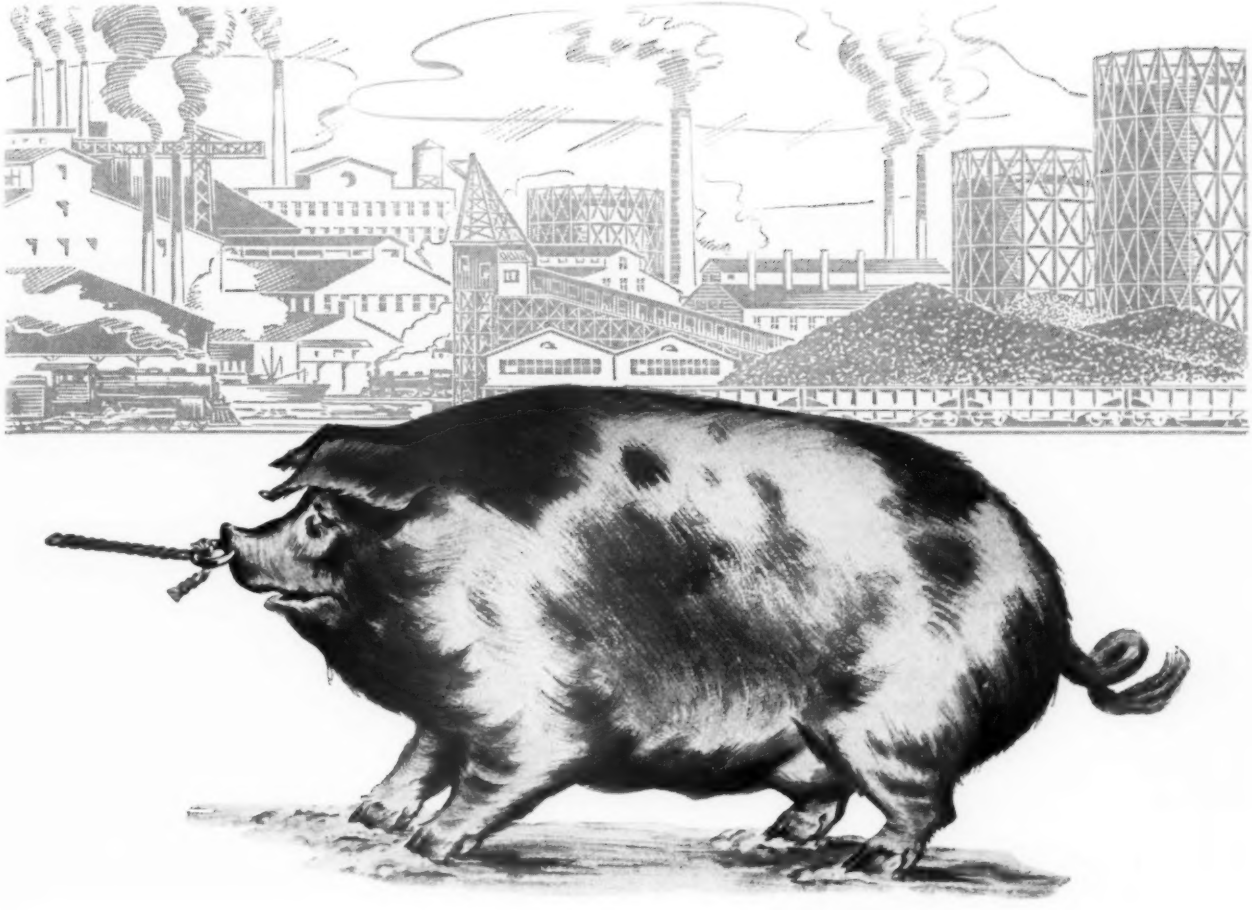
$$\text{Heating up K factor} = \left[\frac{3 \times 5 \times 2.5}{4} \right] \times \left[\frac{(170 - 70)}{100} \right] = 9.4$$

$$K = \left[\frac{\text{Solution volume in cu. ft.}}{\text{Heating time in hours}} \right] \times \left[\frac{\text{°F above room temperature}}{100} \right]$$

From curve B we find the required heat delivery is 82,000 Btus. per hour. If we want to handle the job with an atmospheric Immersion burner we would probably choose the 4 inch size having an input rating of 110,000 Btus. per hour and a normal "effective" coil length of 16 feet. Using three passes in the 5 foot direction the center line distance from burner to the base of the stack will be approximately 3 x 4 plus 2 x 1 for the crossways between legs or a total of 14 feet. To this we add 5 x 1.1 for the 90° elbows. The result is an effective length of 19.5 feet. On the upper chart a burner input of 110,000 Btus. per hour and an effective coil length of 19.5 feet shows an efficiency of 81 percent. The coil will, therefore, deliver 110,000 Btus. x 0.81 = 89,100 Btus. per hour and the solution can be heated in just under the required 4 hours. In this particular instance the use of the three-pass coil will require a stack height of 8 to 9 feet in order to provide adequate suction. To obtain highest efficiencies the tube diameter is reduced by one pipe size just after coming around the elbow into the last pass. The tank discussed above, therefore, would have a 3 inch pipe for its last pass and the stack would be 3 inch.

High Efficiency

Heating by Immersion and Submerged Combustion allows gas the optimum use of its form value and results in highest utilization efficiencies. The temperature of the heating elements never greatly exceeds that of the solution and their mass is relatively small thus minimizing heat storage in them and any consequent adverse effect on temperature control. Proper location of the elements eliminates the necessity of driving heat through heavy pot walls or through dross and scale formations. Less expensive pot materials may be used and longer life obtained. Insulation may be applied directly to the outside of the pot increasing efficiency and minimizing the shell temperatures to which the workmen are subjected. Heat exchangers require changing only infrequently and this operation may be performed quickly and inexpensively without loss of solution or rebuilding the pot setting. Where desirable, exhaust gases from the heating elements may be used to protect the solution or liquid surface.



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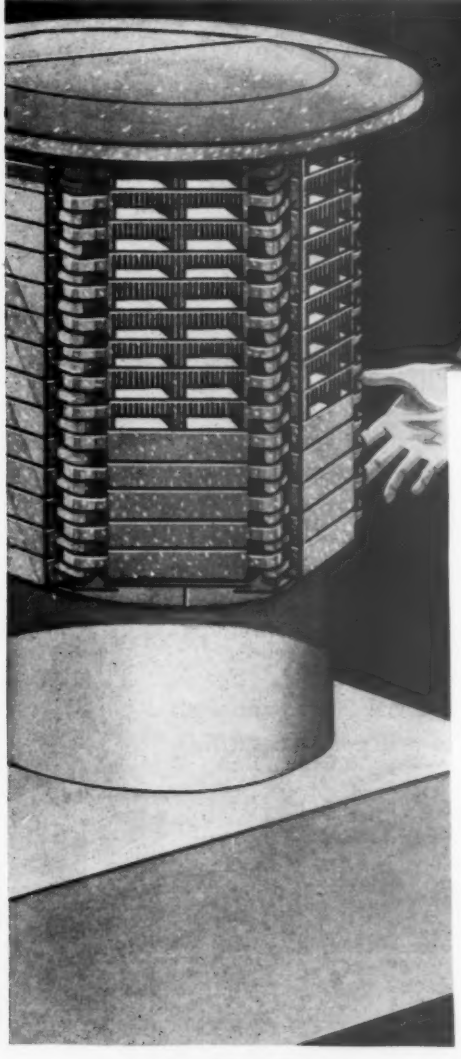

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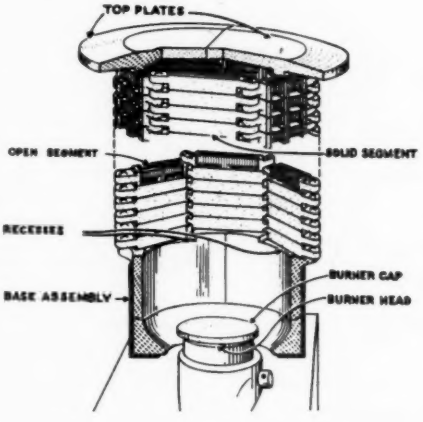

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REPUBLIC RADIANT CONVERSION HEATER

Dealer, Utility Relations

By
Walter E. Lind
Industry Coordinator
Pacific Gas & Electric Company

PERHAPS you have heard of the young sailor who during this past war wrote a letter home to his mother as follows:

"Dear Ma:

"I joined the Navy because I admired the way the ships were kept so clean and tidy. This week I learned who keeps them so clean and tidy. . . .

With love—Junior."

Now, anyone with a flair for brevity would appreciate it if the subject of dealer, utility relations could be summed up in as classic a statement as that one. Offhand, it may seem a bit removed from the subject at hand—but actually there is a parallel. In the first place, we in the utility business take pride in the way our relationships to our dealers are kept clean and tidy and in the second place, we do know who and what keeps them that way.

If we choose we could stop right there—smug and self-satisfied. Sure—our dealer relations are good! Certainly all those responsible for them are doing all they can to keep them that way! But if we do try to stop right there our ship heads into that course of complacency which eventually leads into stormy seas.

There has been all too many cases of complacency in business, in State and international affairs, and since we know the hazards we do not choose to say that "all is well and there is no need to spend time in discussing the matter." Rather, we do choose to discuss the matter;—but how?

To approach it as a problem would be to assume there was a problem; to offer a cure-all would be to assume that I had a panacea for all ills; to appeal to action would be assuming that you or any other group could, or would, rise up and carry on a crusade. It seemed, then, that in order to see what made the thing "tick" we might take it apart by asking the following questions:

1. What are good relations between the utility and the dealer?
2. Why is it important that we have good relations?
3. How can we know ours are good?
4. What factors bear on these relations?
5. What can we do to reach the maximum in good relations?

***Dealer - Utility Relations are important. Such relations require constant attention on the part of the Utility to keep relations friendly. Mr. Lind makes some good suggestions on the subject in his paper presented at the recent Utilization Conference of the Pacific Coast Gas Association.*—ED.**

Now, let's try to put the subject back together by answering these questions.

What Are Good Relations Between the Utility and the Dealer?

The answer to this is not "how high is up?" The best of relations can be said to exist when the highest possible percentage of our dealers and we are:

1. Mutually friendly.
2. Interested in the welfare of each other's business.
3. Willing to offer and accept constructive criticism and suggestions.
4. Willing to stand together in adversity; to defend each other, if necessary.
5. Promoting the best possible service to our mutual customers.

Why Is It Important that We Have Good Relations?

Because a friendly, cooperative dealer will—

1. Sell more appliances, more utilization, and more load on our lines. In 1941 the sales of gas appliances in Washington, Oregon, California and Arizona added up to, in round figures, 185,000 gas ranges, 180,000 water heaters, 18,000 central furnaces, 53,000 floor furnaces, and 140,000 other space heaters. The annual gas sales revenue from those domestic appliances alone, not considering other utilization equipment and special applications, aggregated probably $6,500,000.

Now in 1946 there are "guesstimates" that the number of dealers will ultimately grow to possibly double the 1941 figure. One need only to think of the pent-up potential appliance market, the tremendous population increase on the West coast, and the production estimates of manufacturers and he will soon conclude that there will be lots more dealers and they can and will do much more than the past volume of business.

One could argue that regardless of good dealer relations we would get this load on our lines because it is a profitable business for the dealer. Certainly we would get most of it—but we would not get the top increment which friendly dealers sell against competitive fuels—and that which we get by industry cooperative promotions.

Since we all realize the value of new load on our lines, with its attendant possibilities of lowered costs to our customers and the future welfare and development of our business, we must appreciate that the dealer is a pretty important partner in our business.

2. Be an emissary of good will—helping to promote our public relations. Let's face the facts on this point! By far and large the friendly dealer probably won't go out of his way to tell people how good we are. But, if he is "sold" to our way of doing business, he just cannot help but reflect it in his daily contacts. On the other hand, any dealer with whom we may have poor relationship poses the hazard expressed by the adage "one bad apple can spoil a whole barrel."

This public relations angle assumes magnitude when one considers all the merchandisers of gas equipment, the straight appliance dealers, hardware stores, furniture stores, department stores, plumbers, heating contractors, and installers—all their families and employees, and all the business and social contacts they make. Multiply them all together and you can easily arrive at an astounding figure of potential good will opportunities.

3. Make our job easier—and by that I mean our individual job as well as the company's. You have

worked with friendly, cooperative dealers—you probably have worked with the other kind so you know what it has meant to you individually, and it doesn't take any great imagination to realize how much easier the company's job with respect to services, complaints, appliance repairs and adjustments, installation standards and the like can be when a friendly, cooperative dealer is on the job.

4. Be our friend—and any business in these times needs all of the friends it can get—enough said.

How Can We Know Ours Are Good?

To answer this one it is only necessary to apply the yardstick given above in answer to the question "What are good relations?" Actually, that isn't very easily done and unless we use every possible method of sampling, contacts and reports, we can kid ourselves. In many cases even our "friends" wont tell us, and there always are individuals who by nature are passive and uncomplaining.

Depending on where we set our goal, we probably can, by obtaining a majority expression, arrive at a fair appraisal of the situation and say to ourselves whether or not a good state of affairs exists.

Always we must be practical and realize that there is no such a thing as a 100% job in this field of endeavor because it just isn't humanly possible to please or satisfy all people.

What Factors Bear on These Relations?

First, there are policy matters—those fundamentals in the conduct of our business, some of which might at first glance seem removed from the sphere of consideration of this group. However further scrutiny will indicate that every company policy has a direct bearing on our relationship to our dealers and that this group is concerned because it does at some time or other have occasion to apply those policies in the execution of duties. Policy matters include:

Establishment of service
Sales
Appliance installations
Appliance service
Extension of services
Rates
Credit and collections
Complaints and adjustments.

Second, there is the quality of our performance on the job, and that means for every one on our payrolls, —not only in the physical operations but also in diplomatic handling of situations.

Last, there is the dealer's viewpoint to be considered. We must never lose sight of the fact that he is operating a business which is interdependent with ours (and operating a business in this day must really be a job), and he is interested in building that business, improving his standing and making a profit. Right now, because of unusual conditions and scarcity of merchandise, he is most likely to be in a critical mood.

What Can We Do to Reach the Maximum in Good Relations?

Earlier I said that as a practical matter there could be no such thing as a 100% job. But that shouldn't and doesn't prevent us from setting our sights on that ideal condition in our efforts to promote the best of dealer relations.

Without patting ourselves on the back we can say that a pretty good job has been done—that our ship is clean and tidy. Of course we all still do have some critical spots and cantankerous situations, but a lot of attention has been given to this whole subject matter and it has borne fruit.

Consolidate Gains

Now, our first job is to maintain the progress that has already been made—whether it be large or small —to permit no errors of omission or commission that could cause any backsliding. That, under normal conditions shouldn't be too hard to do, but again I caution that these are very critical times.

Our second job is to make further progress on that increment between our present position and that 100% goal. That is a job, as is always the case in any endeavor for near perfection! In the pursuit of this phase it would be very nice if we could draw up charts and tables depicting indices and percentages of accomplishment and courses of possible action, since graphic portrayals always depict the things so much more forcibly and do help in our thinking.

Along this line I have tried to analyze the situation and weave a pattern from personal experiences and records of negative comments and complaints and their settlement —a definite pattern from which we could conclude that major effort on a specific point would produce major results. Unfortunately, it does not work out that way. There just isn't any crux to the situation. To the contrary the factors are varied and diverse, indicating that our further efforts to improve relations must be in many different lines or directions and for that reason will be most difficult. Some of those lines are familiar and the corresponding efforts are continuing processes. In other lines we may need new approaches; in all lines we need eternal vigilance against that "complacency."

Last year your Chairman, Mr. Doerr, presented a paper before this group on the subject, "Utility Service vs. Dealer Service," the intent of which was to provide a better understanding between the utility and the dealer. Service is an item with which you are very much concerned —and which, incidentally, has been in the dispatches a few times recently, particularly with regard to doing work on the customer's premises and the charges for time beyond that normally allotted.

There still exists cases of misinformation and lack of information on the part of dealers which point to necessity for further, and perhaps individual, education. Involved are such items as physical properties of our gas, utilization, installation standards, sales and service policies.

Friendly Relations

Another matter for consideration: Stories will come up every once in a while regarding someone on a job talking out of turn about the relative merits of appliances, installations, or service performed by a dealer. Every one of these cases affirms the need for careful supervision and continual training in tact, diplomacy, and the use of good judgment. This part of our dealer relationship cannot be over-emphasized because complaints of this nature are usually most serious.

It is an essential part of the promotion of best dealer relations that we keep an open mind, recognizing the dealer's right to his opinion and holding out the right to full discussion. This is particularly true with respect to policy matters.

One might go on and enumerate other items but I would like to add just one more which is very important and about which we all can do a great deal. That is, the subject of human relations. In the first place, the appliance dealer is really a partner in our business and he is entitled to be treated as such. Secondly, he is just as human as any one else—he has his capabilities and his shortcomings, and he responds to kind treatment. Much has been written and said about the "Golden Rule," but there is still a lot of room for the application of it. This matter of cooperation works two ways and the

(Concluded on page 50)

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A Method of Testing Large-Capacity Gas Meters in the Field

By

Howard S. Bean[1], M. E. Benesh[2], Frank C. Witting[3]

Part I

THE difficulties of testing large capacity gas meters are familiar to all gas meter men. In the case of some of the large or even medium sized rotary meters of the lobed impeller type not the least of these difficulties is that of moving the meter. And, even if the meter is moved there remains the difficulty of finding equipment of the conventional gasometer type with which to test the meter anywhere near its rated capacity or even its average operating rate. Hence, the following method of testing these meters in place should be of considerable interest to the fuel gas industry.

The field testing method here described was developed in the Research Department of the People's Gas Light and Coke Company of Chicago with the cooperation of the National Bureau of Standards. The equipment and facilities used in developing the method were provided by the gas company. The essential features of the method were evolved by one of the authors (Benesh) who made the necessary arrangements for its development. The preparation and assembling of the equipment was supervised by another author (Witting) who also directed the initial tests of meters made with the method. The third author (Bean) assisted in some of the tests and in the preparation and presentation of the results.

This present paper on the field method has been abridged from a more complete account of large-capacity gas meter testing appearing in the September issue of the National Bureau of Standards Journal of Research. In addition, the paper in the Journal contains a description of another method of testing these large-capacity gas meters in which the meter is actually operated up to or above its full rated capacity. Also, the results from testing several meters by the two methods are compared, and the results of studies on the instantaneous pressures within the inlet chamber and the metering chambers, and of the effects of pulsations reflected by the inlet piping are presented and discussed.

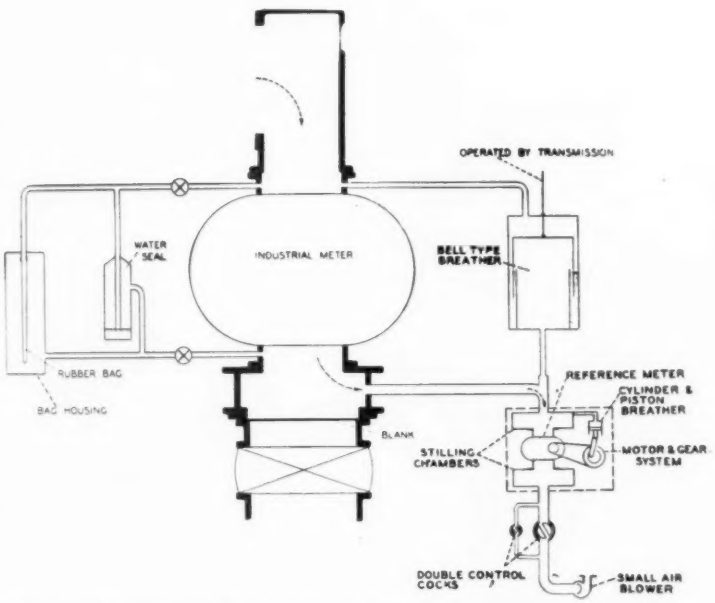

Fig. 1. Diagram of the equipment and connections for the displacement test of a rotary gas meter.

Description of Equipment

This method of testing rotary gas meters is made up of three separate tests, namely: determination of the meter's displacement, usually referred to as the displacement test; determination of the rate of flow through the meter clearances corresponding to different pressure drops across the meter, referred to as the clearance test; and the observation of the pressure drop across the meter when it is operating at different rates is referred to as the rate test. When the second or clearance test is made with air, an additional test is needed by which the clearance flow with gas can be calculated from the rate obtained with air, and this test is referred to as the auxiliary clearance test.

The principal items of equipment used to make these several tests, shown diagramatically in Figures 1, 2, and 3, include a small reference meter with a driving motor and gearing, a second motor and gear system for driving the industrial meter, mechanically operated breather, rubber bag differential pressure indicator, small suction type air blower, diaphragm type gas meter, brake, and such additional items as thermometers, manometers, and stop watch. A better understanding of the testing procedure will be gained if some of these items are described in some detail.

Reference Meter

This reference meter was obtained by the addition of various special parts to a standard 2½" x 3" rotary

[1] Chief, Gas Measuring Instruments Section, National Bureau of Standards.
[2] Chief Research Engineer, People's Gas Light and Coke Company, Chicago, Ill.
[3] Research Engineer, People's Gas Light and Coke Company, Chicago, Ill.

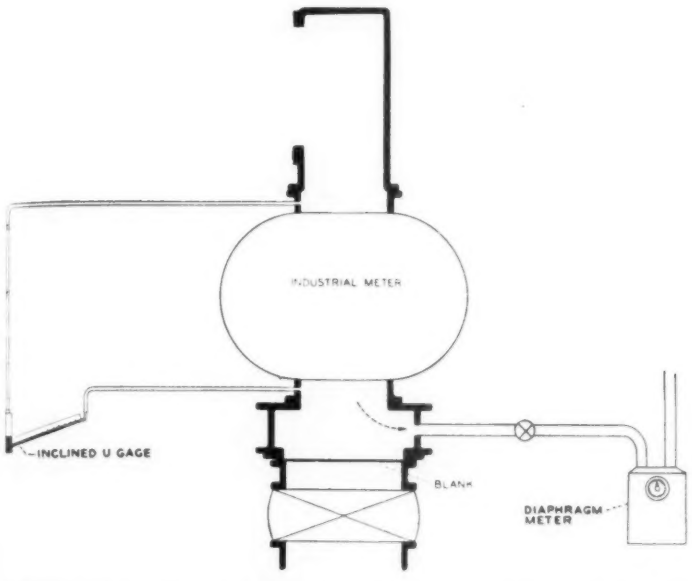

Fig. 2. (left) Diagram of the equipment and connections for the clearance test of a rotary gas meter.

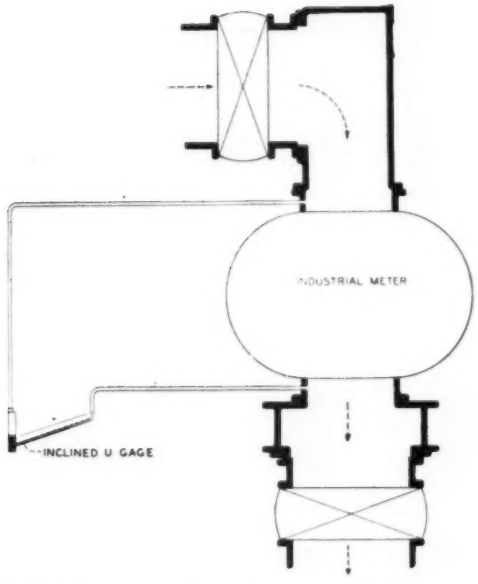

Fig. 3. (Right) Equipment and connections for the rate test of a rotary gas meter.

blower provided with special inlet and outlet flanges.[1]

The conversion of a small rotary blower into a very accurate displacement meter is accomplished by providing the exact amount of external power necessary at all times to permit the blower to operate without any flow through its impeller clearances. The external power is supplied by a 1/20 hp induction motor through a six step variable speed reducer and chain driving system. These six speeds permit the meter speed to be varied from 96 to 1475 rpm in steps of equal geometric progression. Since the operation of this type of meter tends to produce pulsations, particularly in the inlet chamber which may affect the accuracy of the meter's indications, large chambers are attached to the inlet and outlet openings of this meter to dampen these pulsations, and as a further aid the inlet chamber, which is the larger, is filled with wire cloth.

These dampening chambers are suitable for the dampening of all the higher frequency pulsations but their capacity is insufficient for the low frequency pulsations occurring during the operation of the meter at the two lowest meter speeds. As the suppression of low frequency pulsations is difficult unless chambers of very large size are used, these pulsations are eliminated at their source by the use of a compensating piston and cylinder breather. The cylinder of this breather is connected to the meter inlet while the piston is operated by the driving system of this meter at such a rate that it travels through four complete cycles for each revolution of the meter. A steady flow of air into the meter is obtained by synchronizing the motion of this piston with the positions of the meter impellers.

Regulation of the rate of flow of air or gas through the reference meter, and therefore through the service meter under test also, is by means of the parallel connection of a 2" and a 3/8" plug cock attached to the reference meter outlet. The condition of zero pressure drop through the reference meter is indicated by a gage consisting of an oil bead about 1½ inches long in a slightly bowed glass tube with self draining enlargements at each end. The number of revolutions made by the reference meter during the internal of a test are obtained from a revolution counter driven from one impeller shaft through a clutch which can be engaged or disengaged without loss of motion, slippage or over run.

The reference meter, its stilling chambers, breather, gear box and revolution counter are assembled in a common wooden case, as this not only aids in temperature control but also provides protection and greater convenience in moving. The control cocks and differential pressure gage are of course on the outside of the case. The driving motor is mounted on the top of the case so that heat from it will not affect the meter.

This meter was calibrated by direct comparison with a piston meter[2] which was used as a primary standard. The influence of pressure pulsations on the accuracy of the reference meter was checked by interposing various size chambers between the two meters. These chambers were introduced to assimulate the outlet connection volumes of various sizes of industrial meters, and it was found that the calibration of the reference meter was unaffected by the size of these chambers when the meter was operated at the four highest of the six possible meter speeds, or when the piston breather was used with the lower speeds. In the subsequent use of the assembled reference meter unit the piston breather was used whenever the meter was operated at any of the three lower meter speeds.

The results of calibrating the reference meter are shown in Figure 4. The upper curve gives the meter displacement per revolution without the piston breather while the lower curve gives the displacement at the three lower rates when the piston breather is used.

[1] It is not essential that this meter be of the rotary type. Flow meters could be used but the calculation of the results with them would be much more tedious. Other types of displacement meters could be used, providing they are sufficiently accurate and retain their calibration within less than 0.1% for a reasonable period of time.

[2] See R. P. 908, Journal Of Research, N.B.S., Vol. 17, Aug., 1936, p. 218.

Motor and Transmission System for Driving Industrial Meter

The power for driving the industrial meter under test is obtained from a 1/15 hp, 110 volt universal motor provided with a very sensitive governor by means of which the motor speed can be held within very close limits at any desired value between 3000 and 7000 rpm. The transmission system contains a series of spur gears which reduce the high motor speed to the low meter speed, and the gearing is so arranged that any one of six different gear ratios may be used which double or halve the adjacent speeds. These gears are completely enclosed in a metal housing with provision for continuous lubrication. The motor is mounted on the outside of this housing so that the two form a single piece of apparatus.

The output from this unit is suitable for driving all sizes of meters up to and including the 12 x 36 inch size. For driving the larger sizes of meters both lower speeds and greater torque are required, and these are obtained by the addition of a second gear box. The combinations of gear ratios that can be obtained in conjunction with the variations in motor speed makes it possible to drive meters at speeds of less than 1/15 to over 15 rpm. When in use, the output shaft is aligned with and coupled to the meter hand wheel. The weight of the unit as well as the reaction to driving the meter are carried by an adjustable support bolted to the transmission housing.

Mechanical Breather

The displacement test of the industrial meter is based on the requirement that there be no appreciable pressure difference between its inlet and outlet. Also, the use of another rotary meter operated at constant speed as the reference meter for this test imposes the additional requirement that the flow reaching the reference meter shall be steady and nonpulsating. As the discharge from a rotary meter pulsates with a frequency of four times the meter speed, it is necessary to apply some means of neutralizing the pulsations. This is accomplished by the combined actions of a properly synchronized mechanical breather for neutralizing the larger flow irregularities and a very light-weight breathing diaphragm (the differential pressure indicator) for removing the small remaining irregularities.

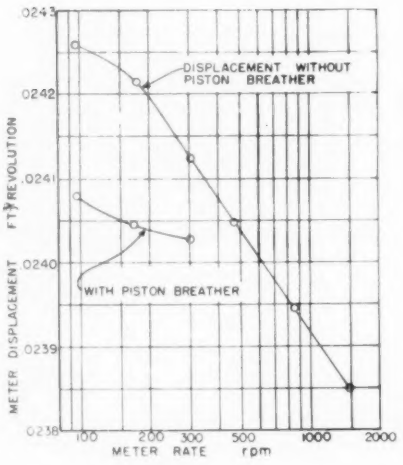

Fig. 4. Calibration curvs of the 2½" x 3" rotary reference meter. The addition of the breather changes the capacity of the clearance volume of the system and, by making the flow through the meter steadier, decreases the flow through the clearances. Hence, the difference in the calibration curves for the two conditions.

Two sizes of mechanical breathers are used in this work to cover the full range of sizes of rotary displacement meters. The smaller of these breathers used in the testing of all meters up to and including the 12" and 36" size is an accordion type bellows mounted within a pressure vessel. One face of the bellows is fastened to the inside face of the pressure vessel. The other face is movable with its actuating rod passing through a packing gland. The bellows are operated from a cam which is part of the mechanical drive and transmission system and the amplitude of the bellows movement is regulated by an adjustable linkage system between the cam and bellows. The cam rotates at four times the speed of the industrial meter, and is synchronized with the meter impellers at the time of attaching the driving unit to the meter. The space within the bellows is connected to the meter inlet, and that between the bellows and pressure vessel is connected to the meter outlet.

A simple prover bell suspended by a wire and enclosed within a pressure vessel serves as the large breather. A larger size cam and linkage system is used with this breather, but otherwise the method of its connection and operation is the same as with the smaller. This breather is diagrammatically illustrated in Fig. 1.

Differential Pressure Indicator

This piece of apparatus is formed by a long, wide and narrow bag of very thin rubber suspended within a pressure chamber. The narrower sides of this chamber contain glass windows and the bag is suspended so that, when hanging freely, the narrow edges of the bag are visible through the windows. The inside of the bag is connected to the inlet side of the meter under test, and the space between the bag and the pressure chamber is connected to the meter outlet. Thus any difference between the inlet and outlet pressures will cause the bag to swell or flatten. Since the force opposing any difference between inlet and outlet pressures is due to the small horizontal component of the weight of the bag it follows that extremely small differences of pressure will distort the bag. A continuous distortion of the bag in one direction does not mean that the pressure difference is increasing so much as it means that the direction of the difference remains unchanged. As will be mentioned later, the method of keeping the bag in its neutral or zero position is by regulation of the speed of the motor used to drive the industrial meter. The relatively large capacity of the chambers of this differential pressure indicator make it possible to reduce the number of speed adjustments necessary to maintain zero pressure difference. Furthermore, this large capacity assists in smoothing out any small fluctuations in the rates of flow through the industrial meter and small reference meter.

The extended range in size of the rotary meters make it necessary to provide two sizes of breather differential pressure indicators, one having ten times the volume of the other. To protect these indicators against injury from excessive pressure differences, they are provided with shallow water seals which are part of their cases.

Small Air Blower, Diaphragm Meter and Brake. The small air blower is a direct connected electrically driven blower capable of withdrawing 2000 ft³ of air per hour at a negative pressure of about two inches of water and discharging it into the atmosphere. This blower is used to draw air (or gas) through the industrial and reference meters during the displacement test.

As explained later in the description of the clearance test, a diaphragm meter is used to measure a small flow of air or gas vented from the outlet

(Concluded on page 50)

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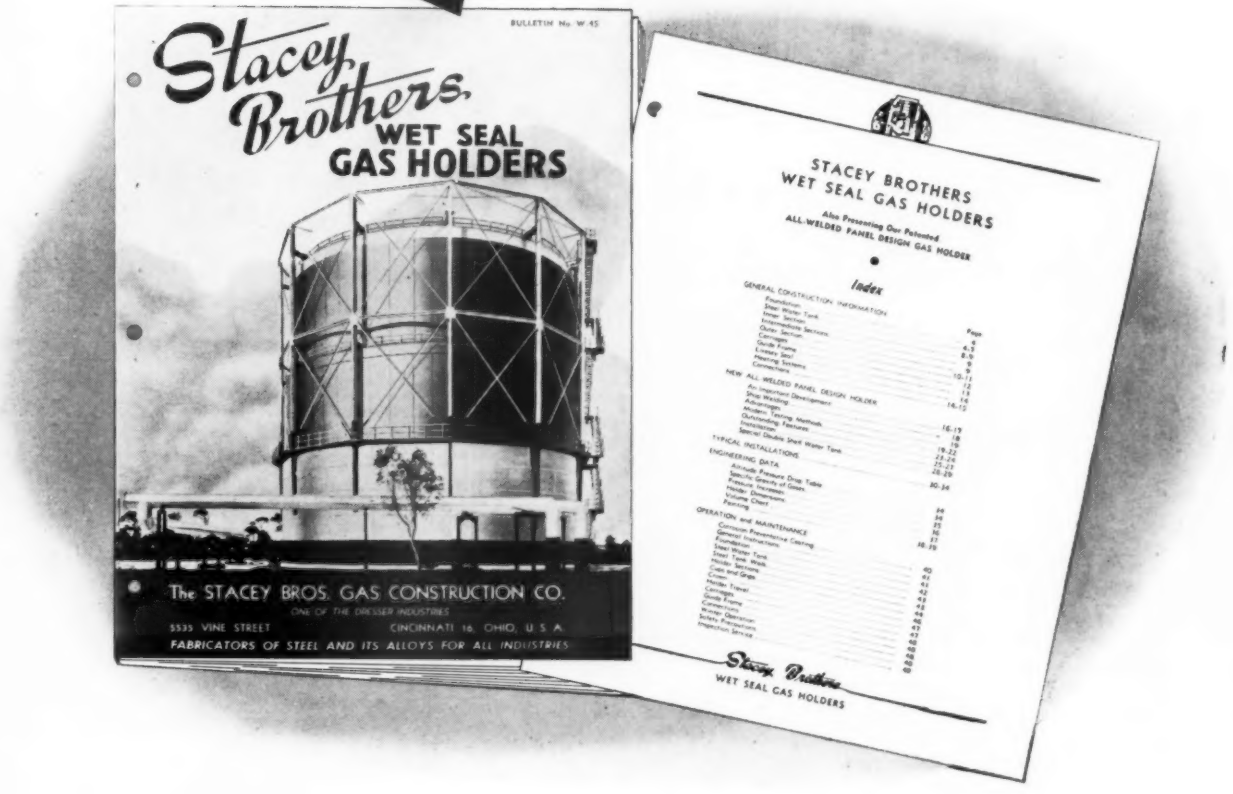

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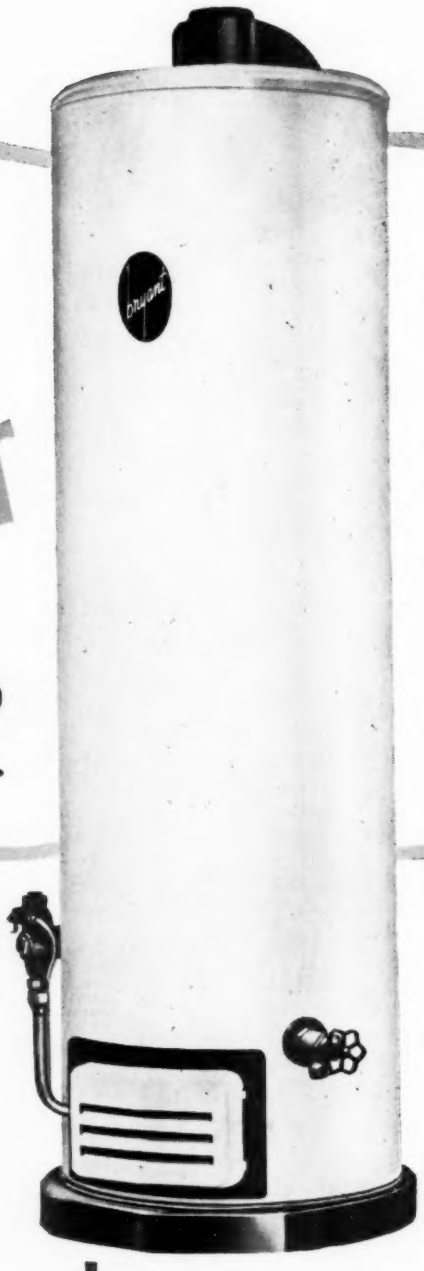

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CHAPTER VI

Part 1

Industrial Processing—Laundries—Hot Water Demand

THE DEMAND for hot water in industrial plants requiring hot water for processing or in laundries will rarely be distributed evenly over the hours comprising the working day but will reach a peak on one or more occasions during each working day, or shift. Such periods of peak hot water demand may exist for a *single hour* and may recur after an interval of an hour, or more, of decreased or *off-peak demand*—or may continue at the same high level for two, or more, *consecutive* hours depending on operating practice or work load. To insure an adequate supply of hot water at the *required* temperature during non-recurring single peak hours—or during two, or more, consecutive hours—when the *maximum* volume of hot water will be required, it will be apparent that laundry or processing hot water requirements *must* be interpreted in terms of *peak hour demand.*

(1) A water heating system serving a commercial laundry or industrial plant requiring hot water for processing must, accordingly, be able to supply the peak hot water demand which will occur during *any* single hour when the largest number of equipment units which require hot water will be operating simultaneously at, or near, their *greatest capacity.*

Note. Where, as a result of work load conditions or operating practice, the peak hour demand may recur during a second consecutive hour, or more, the relationship of the recovery capacity and/or the hot water storage capacity to peak hour demand should be considered when determining the required capacity of the water heating system.

FIGURE NO. 8
CAPACITIES OF CYLINDRICAL TANKS IN GALLONS PER FOOT OF LENGTH

DIAMETER in inches	GALLONS Per lin. foot
12	6.
18	13.22
20	16.32
24	23.5
30	36.8
36	52.9
42	71.9
48	94.

Computing Peak Hour Hot Water Demand

(1) To determine the peak hour hot water demand for commercial laundries or industrial plant requiring hot water for processing, proceed as follows:

(a) First—Determine the number of gallons of hot water that each equipment unit will require during *one hour* of full capacity operation. If accurate figures covering the hourly hot water requirements of each machine are not available, the number of gallons of hot water required for *each* filling may be determined by means of the *capacity tables* shown in Figures 8 and 9.

(b) If the equipment unit is *cylindrical* and installed in a *vertical* position, multiply the number of gallons required per *lineal foot*—as shown in Figure 8 for various tank diameters—by the depth, in *feet,* to which the unit is filled to determine

FIGURE NO. 9
TABLE FOR DETERMINING VOLUMETRIC CONTENT OF PARTIALLY FILLED, HORIZONTAL, CYLINDRICAL TANKS

PART OF DIAM. AT LIQUID LEVEL	PART OF TOTAL CAPACITY	PART OF DIAM. AT LIQUID LEVEL	PART OF TOTAL CAPACITY	PART OF DIAM. AT LIQUID LEVEL	PART OF TOTAL CAPACITY	PART OF DIAM. AT LIQUID LEVEL	PART OF TOTAL CAPACITY
.01	.00171	.26	.2066	.51	.5128	.76	.8155
.02	.00476	.27	.2179	.52	.5255	.77	.8263
.03	.00874	.28	.2292	.53	.5383	.78	.8369
.04	.0134	.29	.2407	.54	.5510	.79	.8474
.05	.0187	.30	.2523	.55	.5636	.80	.8576
.06	.0245	.31	.2640	.56	.5763	.81	.8677
.07	.0308	.32	.2759	.57	.5889	.82	.8776
.08	.0375	.33	.2878	.58	.6014	.83	.8873
.09	.0446	.34	.2998	.59	.6140	.84	.8967
.10	.0520	.35	.3119	.60	.6264	.85	.9059
.11	.0599	.36	.3241	.61	.6389	.86	.9149
.12	.0680	.37	.3364	.62	.6513	.87	.9236
.13	.0764	.38	.3487	.63	.6636	.88	.9320
.14	.0851	.39	.3611	.64	.6759	.89	.9401
.15	.0941	.40	.3736	.65	.6881	.90	.9480
.16	.1033	.41	.3860	.66	.7002	.91	.9554
.17	.1127	.42	.3986	.67	.7122	.92	.9625
.18	.1224	.43	.4111	.68	.7241	.93	.9692
.19	.1323	.44	.4237	.69	.7360	.94	.9755
.20	.1424	.45	.4364	.70	.7477	.95	.9813
.21	.1526	.46	.4490	.71	.7593	.96	.9866
.22	.1631	.47	.4617	.72	.7708	.97	.9913
.23	.1737	.48	.4745	.73	.7821	.98	.9952
.24	.1845	.49	.4872	.74	.7934	.99	.9983
.25	.1955	.50	.5000	.75	.8045	1.00	1.000

the number of gallons of hot water required for each filling. Then multiply the resulting figure by the number of fills per hour to obtain the number of gallons required *per hour* for capacity operation.

(c) If the equipment unit is *cylindrical* and installed in a *horizontal* position, first determine the number of gallons of hot water required to *completely* fill the tank of the machine by multiplying the number of gallons required per lineal foot—as shown in Figure 8, for various tank diameters—by the length of the tank in *feet*.

(d) Next—Determine the *percentage* of the *total diameter* of the tank of the unit to which it is filled for each operation. For example—if the tank is 60" in diameter and is filled to a depth of 36", the depth of the hot water will be 60% of the tank diameter.

(e) Then—Using the table—Figure 9, find the "Part of the Total Capacity," which the tank of the unit will hold when filled to the predetermined level, opposite the given percentage factor corresponding to the figure for the percentage of depth obtained as directed immediately above.

(f) Now—Multiply the *total* capacity of the tank, in gallons, by the "Part of Total Capacity" factor. The resulting figure will be the number of gallons of hot water which will be required to fill the tank of the unit to the predetermined level.

(g) Finally—multiply the resulting figure by the *number of fills per hour* to obtain the number of gallons of hot water required per hour for *full capacity* operation of the unit.

(2) After determining the number of gallons required to supply the *hourly* hot water demand of each equipment unit or machine as directed in paragraphs above, proceed to compute the over-all, peak hour hot water demand as directed below:

(a) Tabulate the hot water demand, *in gallons,* which may be anticipated during each hour of the day for each equipment unit or machine. A suggested form of chart for tabulating the number of gallons of hot water which will be required for *each* piece of equipment during each hour of the working day or shift is shown in Figure 10.

(b) After the number of gallons of hot water required by each machine have been entered in *each* of the hour columns when hot water will be required, add the figures in each hour column together and insert the resulting figures in the "Total" line. The *largest,* resulting figure will represent the maximum number of gallons which will be required by the laundry or other processing machines during a *single hour,* or the *peak hour hot water demand* which the water heating system must be capable of supplying.

(c) *Note.* If the total hot water demand during the hour immediately following the peak demand hour is *equally large* or *exceeds* the hourly recovery capacity of the system, refer to previous paragraphs for information covering the extent to which the reserve of hot water in the storage tank may be used to meet a peak demand which may recur during two or more consecutive hours.

General Cleaning

(1) Since, as previously stated, the hot water demand for general cleaning almost invariably occurs during hours when only a *small,* or *off-peak,* demand exists—for cooking or dishwashing in restaurants—

FIGURE NO. 10

SUGGESTED FORM OF CHART FOR TABULATING THE VOLUME OF HOT WATER WHICH WILL BE REQUIRED BY EACH PIECE OF COMMERCIAL LAUNDRY, OR OTHER INDUSTRIAL PROCESSING EQUIPMENT DURING EACH HOUR OF THE WORKING DAY AND FOR DETERMINING THE PEAK HOUR HOT WATER DEMAND

LIST EACH PIECE OF EQUIPMENT WHICH REQUIRES HOT WATER IN THIS COLUMN	GALLONS OF HOT WATER REQUIRED											
	1st. HOUR	2nd. HOUR	3rd. HOUR	4th. HOUR	5th. HOUR	6th. HOUR	7th. HOUR	8th. HOUR	9th. HOUR	10th. HOUR	11th. HOUR	12th. HOUR
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
* TOTAL GALLONS REQUIRED EACH HOUR-												

* NOTE - Where the USING Temperature of the Hot Water is BELOW the AVAILABLE, or NORMAL Supply Temperature of the Water Heating System, CONVERT the TOTAL Number of Gallons of Hot Water at the USING Temperature to the EQUIVALENT Number of Gallons at the AVAILABLE or NORMAL Supply Temperature by means of the Formula and Instructions provided in FIGURE 10 A.

N.B.M.

FIGURE NO. 10 A.
HOT WATER VOLUME CONVERSION TABLE

Where Hot Water will be required at a LOWER Temperature than that which will be maintained in the Hot Water Storage Tank of a Water Heating System, CONVERT the VOLUME OF Hot Water at the USING Temperature to the EQUIVALENT VOLUME at the AVAILABLE Hot Water Storage Temperature as follows:

WHERE - "A" EQUALS THE TEMPERATURE OF THE AVAILABLE HOT WATER.
"B" EQUALS THE TEMPERATURE OF THE COLD WATER SUPPLY.
"C" EQUALS THE USING TEMPERATURE OF MIXED WARM WATER

To determine the PERCENTAGE OF THE AVAILABLE Hot Water -- DIVIDE "C" Minus "B" by the SUM of "A" Minus "C", PLUS "C" Minus "B".

Or:

$$\frac{C - B}{(A - C) \text{ plus } (C - B)}$$

Equals the PERCENTAGE of Hot Water (A) which will be required.

personal toilet requirements in multiple housing or in detached buildings or areas devoted to multiple bathing — laundries or industrial plants requiring hot water for processing—or in shops or offices—it may, in most instances, be ignored when determining the required capacity of a water heating system. It must be expected, however, that certain exceptions to this condition will be found to exist and that, under such circumstances, the demand for hot water for general cleaning must necessarily be *included* with the peak hour hot water demand for other sources. Among these exceptions, where the hot water demand for general cleaning *must* be computed and included with the peak hour demand for hot water originating from other sources, the following may be noted:

(a) Where the general cleaning operations are carried out in conformity with a regularly scheduled program embracing the entire day, work period or shift when demands for hot water from other sources will also exist.

(b) Where the hours devoted to general cleaning are so scheduled as to result in this demand for hot water occurring coincidentally with an appreciably heavy demand from other sources.

(c) Where concentration of general cleaning activities in a short period of time during which the peak hour demand for hot water for this purpose would equal or exceed the maximum hot water demand from other sources during a single hour.

(d) Where hot water requirements for general cleaning are supplied by an *independent* water heating system.

Peak Hour Hot Water Demand

(1) Although, as stated above, the hot water demand for general cleaning may, in most instances, be ignored when determining the required capacity of a water heating system unless it is abnormally large or occurs concurrently with an appreciably large demand from other sources, it can, if necessary, be estimated on the basis of either of two methods when determining the peak hour hot water demand:

(a) The *total* hot water requirements for general cleaning may be computed on the basis of the *area* to be cleaned, or

(b) May be computed on the basis of the maximum, hourly fixture hot water demand.

(2) While the *total* demand for hot water for general cleaning may be computed as indicated above, the *time element* or duration of the cleaning period, will be the determining factor in estimating or computing the peak hour hot water demand if it should be necessary to include this demand with that from other sources when determining the over-all, peak hour hot water demand.

Computing Peak Hour Hot Water Demand

(1) Where it is necessary to *include* the hot water demand for general cleaning with that originating from other sources, the total demand may be estimated as follows:—

(a) An average of 30 gallons of hot water at a temperature of from 130° to 140° F., for *each* 10,000 square feet of floor area.

(b) Approximately 5 gallons of hot water at the same temperature will be drawn from *each* slop sink or other hot water outlet on *each* occasion when mop buckets or other hot water receptacles are filled.

This figure includes the hot water which will normally be used for cleaning or rinsing mops or cloths. The number of times which this operation is repeated will determine the *total* volume of hot water which will be used.

(2) After determining the *total* number of gallons of hot water which will be required as directed above, *divide* this figure by the number of hours which will be required for accomplishing the cleaning operation. The resulting figure will be the number of gallons of hot water which will be required during a *single hour*, or the peak hour hot water demand.

(a) If it is difficult or impossible to accurately determine the number of times that hot water will be drawn from a slop sink or other hot water outlet for general cleaning purposes, the peak hour hot water demand — per slop sink may be assumed to be approximately 30 gallons per hour.

(3) Finally—Determine whether the peak hour hot water demand for general cleaning occurs during the *same* hour as does the peak hour demand originating from other sources served by the same water heating system and, if so, combine the number of gallons required for general cleaning with the number of gallons required for the purposes to determine the total peak hour demand.

Part 2 of Chapter VI will discuss required capacity and selection of proper type of water heating system.

Breitenbach Appointed Mgr. of Hot-Boy Inc.

A. W. Conley, executive vice president of the Coroaire Heater Corporation and its wholly-owned subsidiary, Hot Boy, Inc., announces the appointment of C. F. Breitenbach as manager of Hot Boy, Inc.

Mr. Breitenbach was formerly assistant to the executive vice president, and before that was an executive for many years with the May Company of Cleveland. He is well known in the appliance industry.

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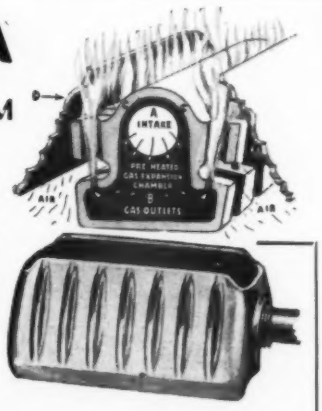

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Construction Industries and Home Show in Southern California

THE GAS INDUSTRY was well represented at the Construction Industries and Home Show of Southern California held July 12 to 21 in Pan Pacific Auditorium, Los Angeles.

The major emphasis on gas for domestic, heating, cooking, refrigeration, water heating and appliance operation appeared in a series of seven New Freedom Gas Kitchens. These were designed under the supervision of Frank Weiss, Los Angeles director of the Natural Gas Bureau, in collaboration with the sponsoring manufacturers.

The seven kitchens were equipped with gas appliances in a manner that permitted visitors to obtain a clear conception of the various functions of gas in the postwar kitchen, as well as to permit the manufacturers of the equipment to present their products to the public in the actual manner in which the appliances are used in the home.

The seven kitchens were set up at the main entrance to the auditorium in a sequence that permitted the public to stroll from one directly into the next in line.

The display kitchens included two "Youngstowns," two "Eubanks," two St. Charles and one Servel.

A feature of the Servel New Freedom Kitchen were Servel kitchen cabinets which the company had on display publicly for the first time on the West Coast. The Servel refrigerator in this kitchen was installed so that the waste heat from the refrigerator heated the steel back of a food cabinet mounted atop the refrigerator and provided sufficient warmth to keep such items as cereals and crackers crisp and dry.

In the Servel kitchen the Roper gas range with its four staggered burners was mounted beneath a filter installation. Two 7x12" filtering pads were installed in a wooden housing directly above the range top. Lowering of the hinged door of the housing automatically turned on an electric light and started a suction fan with which the cooking odors and fumes were drawn up into a duct built into the dish cabinet and disposed to the outer air through a vent in the roof.

The filtering and venting equipment was declared to be an improvement over previous kitchen venting systems in that the pads and fans are mounted directly above the range instead of some distance from the source of fumes and odors. In the Home Show installation, the cooking odors were trapped in the housing within 15 inches of the range top, filtered and withdrawn into the duct.

One of the Youngstown kitchens was equipped with a four-burner divided top Grand gas range built flush with the wall. The second Youngstown kitchen contained a Universal one-piece top gas range and a Philco deep freezer of 250 pounds capacity in lieu of a refrigerator.

O'Keefe and Merritt, Western Holly and Tappan gas ranges were displayed in other New Freedom Gas Kitchens. The gas kitchens also featured various other types of gas appliances, such as water heaters, dish washers and refrigerators.

One of the main attractions at the Home Show was an All-Gas G.I. Model Home in which gas appliances served the requirements for cooking, heating, refrigeration and water heating. The all-gas house, which was set up in the Pan Pacific grounds outside the exhibit hall as a contrast to an adjacent "all electric" home, was designed in the 3-bedroom, California ranch house type in the $7500 cost bracket.

The gas phases of the house were designed by Frank Moon, supervisor of the Southern California Gas Co.'s Home Planning Bureau. It was equipped with a gas range, water heater, refrigerator and floor furnace. The heating system consisted of a double register gas floor furnace installed between hallway and the living room in a position that permitted sufficient heat radiation to heat the entire house.

The kitchen, in keeping with the house as a whole, was designed along small and compact lines and limited floor area. The various equipment units and their installation were selected to conform to the space limitations of the overall design. A gas range, sink and small laundry with automatic washer and tray were fitted in in a "U" arrangement with the gas range mounted at one of the peninsulas of the "U." The gas water heater and a water softener were installed in a small service porch leading off the kitchen.

Sponsors of the Home Show reported that a total of 89,300 persons visited the all-gas and all-electric houses. The two G.I. homes were raffled off as one of the special events near the close of the Home Show. Only accredited men and women veterans of World War II were eligible to participate in the drawings. Registrations for the drawing totaled 46,000.

The all-electric home went free as a gift of the Home Show management to an ex-Coastguardsman who had served 20 months overseas. The all-gas home was sold for $7500, considerably less than actual construction costs, to a technical sergeant who had served three years in the field artillery. The appliances were not included.

Gas equipment manufacturers who maintained exhibit booths at the Home Show included the following:

Gaffers & Satller, exhibited blower type gas heating units, forced air furnaces and floor furnaces. M. S. Grant Supply Co. displayed gas-fueled disposal units for use in homes, institutions and medical offices. These units were designed with concealed flue connection, with down-draft carrying the heat from a gas burner through the refuse to dry the material prior to firing it.

L. K. Ward & Co. of Los Angeles exhibited some ten different types of gas space heaters, floor furnaces and wall furnaces. Other exhibitors of gas appliances included Hall & Hart Co., George D Roper Co., Western Stove Co., H. F. Haldeman, Inc., Empire Stove Co., Gay Engineering Co., Drayer-Hanson Co., Utility Appliance Corp., Occidental Stove Co., Chambers gas ranges.

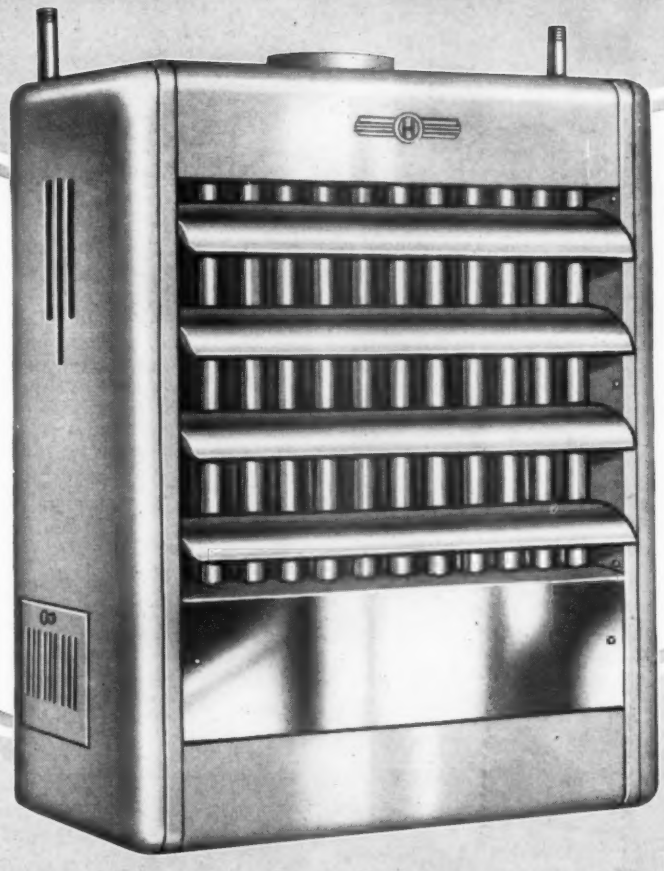
Australian Engineers Conduct Technical Study

A two week technical study of testing and research techniques at the American Gas Association Testing Laboratories has been completed by three Australian Gas Engineers.

In the United States for the purpose of surveying American methods and technical procedures, the visitors are all executives of the Australian Gas Light Company. They are W. J. D. Palmer, Assistant Research Officer; F. S. P. Harper, Assistant Supervisor, Service Division; and G. A. Peterson, Industrial Gas Engineer.

During their stay here the men are visiting a number of leading utility companies and equipment manufacturers and consulting members of the Association's headquarters staff who have assisted them in arranging their itinerary. The Australian gas industry organized a testing laboratory in that country several years prior to the war which was established on lines similar to our own.

HUMPHREY
GAS UNIT HEATERS



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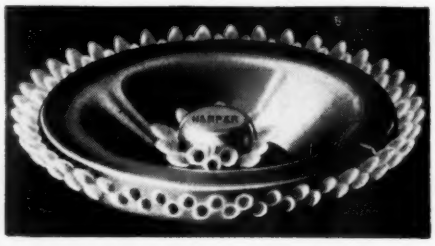
This is the new, improved
HARPER CENTER SIMMER BURNER

HERE is the new Harper top burner that is winning widespread acclaim from the gas industry. It will find equal favor with housewives because it makes possible even better cooking results than users of the Harper Burner have enjoyed in the past.

Years of laboratory research and field tests contributed to the development of this scientifically engineered burner. The net result is that it makes possible fuel savings up to 39%, eliminates guess-work in cooking, saves pot-watching, keeps kitchens cooler, offers more healthful, less wasteful cooking . . . cleaner, odorless cooking.



NEW, IMPROVED CONSTRUCTION!
Note how the two rows of flame ports are staggered, permitting better flame adjustment than is possible with ordinary top burners . . . flames do not "float off" or blow away . . . combustion is more efficient.

EASIER TO CLEAN!
No castings or bolts to remove . . . a slight twist removes burner for cleaning.

We're telling your Customers about it!

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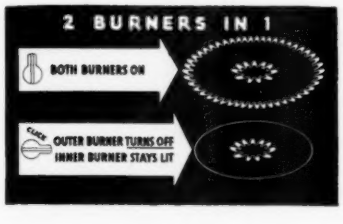
NEW RANGE
. . . make sure it has the famous
HARPER CENTER SIMMER BURNERS
look inside for the booklet with this seal!
TOP BURNER COOKING
The Harper Center Simmer Burners are superior to ordinary top burners because each Harper burner is really 2 burners in 1. As shown in diagram, the big outer burner brings foods to a quick boil. Turn handle until it "clicks" and the big burner goes out, leaving only the small, efficient inner burner lit to finish the cooking.
Only the separate Harper Center Simmer gives you the controlled low heats you need to keep foods warm for serving . . . to eliminate pot watching and boiling dry . . . to allow cooking with little water, which saves time and gas and keeps the average kitchen 9 degrees cooler. Only the Harper separate Center Simmer can help you so much in your cooking.
Insist on Harper Burners!
•18 Leading Gas Ranges are Harper Equipped
2 BURNERS IN 1
BOTH BURNERS ON
OUTER BURNER TURNS OFF
INNER BURNER STAYS LIT
HARPER-WYMAN COMPANY, CHICAGO 20

A NEW CONSUMER advertising program appearing in leading women's magazines tells prospective range buyers about the advantages of the Harper Center Simmer Burner. Many of these 21,500,000 readers will buy from *you*, and here's how you can trade them up to a higher-priced range:

We have prepared a FREE booklet, "How to Sell More Gas Ranges," which contains a series of quick, convincing sales floor demonstrations that graphically illustrate the superiority of the Harper Center Simmer Burner. Send for copies for your salesmen. Harper-Wyman Company, 8562 Vincennes Avenue, Chicago 20, Ill.

The Harper Center Simmer Burner operates on the unique principle of "2 burners in 1" . . . a STARTING BURNER for frying and to start foods boiling, plus a small, economical COOKING BURNER, to maintain the cooking . . . both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.



HARPER CENTER SIMMER BURNER *". . . Holds the Lines for Gas"*

HARPER · CENTER SIMMER

RECENT COURT DECISIONS Affecting Gas Utilities

New Gas Explosion Law Suits

By

Leo T. Parker

Attorney at Law
Cincinnati, Ohio

A FEW DAYS ago I received a letter from a reader, in part as follows: Can a gas company avoid damage liability for gas explosions by inserting in the consumer's contract a clause that the latter will relieve the company from all liability?

The answer positively is no!

This is so because present day courts are in accord with the legal proposition that no corporation may avoid liability for negligence of its employes.

For illustration, in Fairfax Gas Company v. Hadary, 151 Fed. (2d) 939, reported March, 1946, it was shown that a man named Hadary rented a home in which were gas equipment and appliances. He applied for gas and signed a contract that contained the following clause: "Company shall not be liable for property or personal injury resulting from leakage, fire, explosion, or from any other cause whatsoever."

Hadary, on coming home found on the door a note from a gas company employe reading: "To start gas, turn valve on top of cylinder." When Hadary lit the gas stove in the kitchen and struck a match to light the hot-water heater, an explosion immediately took place which caused severe injuries for which he sued the gas company.

During the trial the evidence conclusively proved that an employe of the gas company knew of a definite leakage of gas in the home to be occupied by Hadary, and that he took no steps either to have the leakage repaired or to inform Hadary thereof. On the contrary, in spite of the employe's knowledge of the leak he left the note instructing Hadary how the flow of gas could be started.

In view of this testimony, the higher court promptly held the gas company liable in damages for the injuries sustained by Hadary. This court said:

"In general wherever there is a relationship involving public service, a bargain exempting the public utility from its duties as such is invalid . . . Our social conscience is shocked at the idea that Fairfax (gas company) should be here permitted to hide behind the beneficent shield of contract. Common humanity would seem to require, contract or no contract, that Hadary should be apprised by Fairfax of what it knew was a danger, both real and imminent."

This same principle has been applied to municipalities while performing duties of public service, telephone companies, public docks, irrigation districts, and even companies manufacturing elevators. A similar principle is applied to warehousemen, garage-keepers, parking-space proprietors, and airports. In other words, these companies may not by contract relieve themselves of their common-law duty of due care to negligence of their employes. Similarly, an innkeeper may not by contract exempt himself from liability for negligence in keeping the goods of his guest, though he may limit his absolute liability.

Property Owner Notified Gas Company

Modern higher courts consistently hold that ordinarily a gas company is under no duty or obligation to inspect pipes and appliances in a house served with gas. Moreover, the company is not ordinarily liable for injuries which may have resulted from a defect in the house pipes or appliances, unless some causal connection is shown between some proven defect and some negligence of the gas company. But notwithstanding this ordinary rule of law gas company employes must exercise a high degree of care which is commensurate with the character of its product, and even though the defect is in an appliance belonging to the consumer, if the gas company is notified of the escaping gas, its duty is to do something about it, either to repair or cause to be repaired the defect or to shut off the flow of gas until repairs are made.

For example, in Barrickman v. National Utilities Company, 191 S. W. (2d) 265, reported February, 1946, it was shown that a home owner went to the basement of his home for the purpose of lighting his hot water heater, stooped down before the heater, lit a match, and an explosion ensued. He received burns and injuries therefrom. He sued the gas company for damages.

During the trial the home owner testified that prior to the explosion he went to the basement for the purpose of lighting the water heater, and that when he lit a match, flames rushed around on the floor. The home owner testified that he had phoned the gas company and notified a company office employe of the dangerous condition. The lower court held the gas company not liable on the grounds that there was no obligation upon the gas company officials to prevent its gas escaping through appliances not owned by it. The lower court also held that since the gas had escaped from a part of the heater not under the control of the gas company there was no liability on the part of the company.

However, the higher court reversed this decision, saying:

"It is plain enough in reason that a gas company is not relieved of all duty and responsibility after notice that gas which it furnishes is escaping from appliances and pipes on private property. Notice changes the usual rule of responsibility of the respective parties and the ordinary rule does not apply."

Improper Installation

A gas company may be held liable for a gas explosion apparently caused by improper installation of gas ap-

pliances sold to gas consumers. And according to a late decision the court may imply from the testimony that the appliance was improperly installed.

For example, in Jones v. Blossman, 25 So. (2d) 85, reported June, 1946, the testimony showed that a woman named Jones purchased from a gas company a water heater which was set up and installed in a closet. At the time the heater was installed closet was not complete, and it had no door, but subsequent to the installation the door was placed on the closet and a gas company employe instructed Jones to leave this door open.

One day Jones went to her clothes closet, which was adjacent to the closet containing the water heater, for the purpose of obtaining some clothes. In order to open the door to the clothes closet it was necessary for her to close the door to the closet containing the heater and this she did. She remained in the clothes closet for a period of some ten minutes and immediately thereafter closed the door to the clothes closet and opened the door to the closet containing the water heater. As soon as she did this an explosion occurred in the closet containing the water heater and fire immediately emanated therefrom causing the destruction of the Jones' home and its contents.

Jones sued the gas company and alleged that its employes were guilty of negligence in installing the water heater in this small closet without any outlets, passages or openings other than a vent running from the heater to the outside of the house. Jones further alleges that the gas which was furnished by the company and used in the heater unmistakably escaped through some defect in the heater, or the pipes connected therewith within the compartment, and this closure was instantly ignited by the pilot light the moment Jones pulled the door of the compartment open.

The gas company denied that the hot water heater was defective in any manner and further denied that it was installed in an improper manner, or an improper place.

The lower court held the gas company liable and the higher court approved the verdict, saying:

"The evidence in this case was not only that the defendant (gas company) sold and installed this water heater to the plaintiff (Jones), but that it also serviced this heater, as well as the other gas appliances in the plaintiff's home. Consequently, when the defendant installed this gas heater he was installing a dangerous instrumentality and it is, by law, charged with knowledge of the particular dangers characteristic to such an instrumentality and it is particularly charged with the duties to use that degree of care which is commensurate with the danger."

With respect to improper installation of the heater, the higher court said:

"I am satisfied that this small closet was practically air tight. I am further satisfied that after the heater was installed the defendant (company employe) told the plaintiff to keep the door open to this closet. The only outlet from this closet with the door closed was the vent pipe and I am satisfied that this vent pipe with its outlet close to the eaves of the house was not sufficient to prevent the impounding of gas within this small closet with the door closed. Therefore, I am of the opinion that if this defendant had used the degree of care which the occasion demanded he would have cut holes or outlets in the floor, or the door of said closet. This he did not do and, therefore, it is my opinion that he was guilty of negligence."

Installation of Service Lines

According to a late higher court decision gas companies in installing their service pipes are required to use that degree of care which a person of ordinary prudence would use under like circumstances. Proof of this degree of care relieves the gas company from liability for explosion of gas.

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CLEVELANDS Save More . . . Because They Do More

For example, in Prudential Fire Insurance Company v. United Gas Corporation, 191 S. W. (2d) 517, reported March, 1946, it was shown that a tenent in the Hend Building smelled gas in the store, and he undertook to test the heater connections and gas pipes in the store for leaks. He performed this project with lighted matches. An explosion occurred which caused considerable damage. The damage consisted of blown-out windows, doors, blown-down partitions, partial collapse of a balcony in the rear of the store, timbers blown through the metal ceiling, and buckled floors above the store gas pipes which were broken and twisted.

On the second day after the explosion an underground leak was discovered in the riser from the Piggly-Wiggly Building service line to the meter.

An insurance company paid damages to the owner of the Hend Building and then sued the gas company to recover the amount it paid.

During the trial the testimony proved that the Hend Building is of stone construction, having a foundation which extends about thirty-six inches below the surface. The Piggly-Wiggly Building is about ten or fifteen feet east of the rear walls of the Hend Building. The Gas Company supplies both buildings with gas for heating purposes from a main located in the alley. The service line to the Piggly-Wiggly Building is buried ten or eleven inches underground and extends along a wall of the Hend Building.

The Insurance Company alleged that the explosion was caused by gas which had escaped from the subsurface leak in the riser, seeped through the cracks and crevices in the wall of the Hend Building, and accumulated therein. The counsel for the insurance company alleged that the Gas Company was negligent in installing the Piggly-Wiggly Building service line so close to the Hend Building.

The Insurance Company further alleged that it did not know whether the leak in the line resulted from age, rust, or some other cause, or how long prior to the explosion the leak developed, but that had the Gas Company officials and employes exercised proper care they would have known of the escaping gas in time to prevent the explosion.

The higher court refused to hold the gas company liable for damages caused by the explosion, saying:

"Under these facts, to charge the Gas Company with failure to exercise due care in installation of the service line, it must have anticipated that escaping gas would after rising from the soil into the air, follow the wall to the crevices and then change its upward course in order to enter such crevices. We do not believe a man of ordinary prudence in locating the service pipe would have anticipated such a sequence of events. We therefore hold that the evidence failed to present any issue of negligence in the location of the service line to the Piggly-Wiggly Building."

Jury May Decide

The higher courts agree that all persons, firms and corporations are accountable for injuries to persons and property resulting from negligence. Therefore, owners of private property, as well as gas corporations, may be held liable for injuries caused by gas explosions resulting from negligence. A jury may decide whether the party being sued was negligent.

For example, in Melba Cafeteria, Inc., v. McClelland, 36 S. E. (2d) 118, reported April, 1946, a woman patron filed suit against a restaurant owner to recover damages for injuries sustained when gas exploded in the restaurant basement.

The patron contended that the restaurant owner was liable because he negligently permitted gas from a water heater to accumulate in the basement.

The higher court held that the patron was entitled to recover damages. The jury decided that negligence of the restaurant owner resulted in the explosion. This court said:

"We think the allegations of the petition on the questions of negligence and diligence were sufficient to carry the case to a jury."

Volunteer Is Injured

According to a late higher court decision a gas company is liable to all persons who sustain injuries resulting from negligence of the gas company officials or employes if the injuries are sustained while performing lawful acts.

For example, in Merritt v. National Gas Company, 165 Pac. (2d) 342, reported May, 1946, it was shown that a housewife's clothing was set on fire while lighting a gas stove. A person named Merritt went to the rescue of the housewife and sustained severe burns. Merritt sued the gas company to recover $3,075 damages on the grounds that the negligence of the gas company was the proximate cause of his injuries. The lower court refused to hold the gas company liable, but the higher court reversed the verdict, saying that a volunteer who goes to the rescue of a person whose clothing had been set on fire by the negligent act of a gas company of proximate cause, states a good cause of action.

In other words, a gas company whose officials or employes negligently cause a gas explosion may be liable in damages to all persons who sustain injuries, except trespassers or those who sustain injuries while performing unlawful acts.

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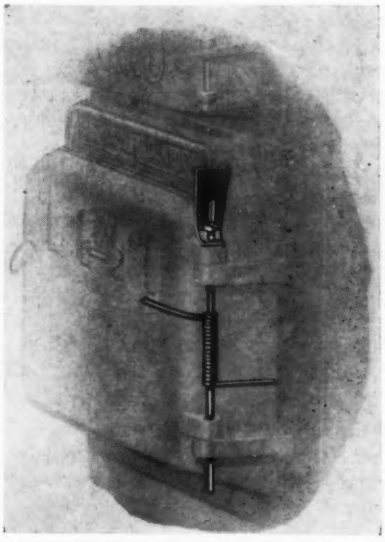

This device, designed for conversion burners, automatically closes the fire door of a boiler or furnace when blown open.

It consists of a cadmium plated door hinge pin, spring and wedge. The hinge pin replaces the regular fire door pins, the spring furnishes the motive power and the slotted wedge holds the fire door in the open position when required.

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Summary of Final Hearing, F.P.C. Natural Gas Investigation

THE SESSIONS of July 31 and August 1 were devoted almost exclusively to cross-examination of E. Holley Poe, consultant for the Natural Gas Industry Committee, on direct testimony he had given on July 17.

Before proceeding with that cross-examination, however, Mr. Poe read a statement in which he explained the function of himself and his organization, E. Holley Poe and Associates, in connection with the preparation of the Natural Gas Industry Committee's case, and explained that any addresses he made or articles he wrote before or during the investigation were entirely on his own responsibility and were not connected in any way with the Industry Committee. He also said that he has been and is definitely of the opinion that there should be no extension or enlargement of the regulatory powers of the FPC over the natural gas industry, but expressed the belief that the investigation had been constructive.

Answering questions by Burton N. Behling, director of the FPC investigating staff, Mr. Poe said the reason many in the industry were alarmed over the prospect of the investigation when it was first announced was because of the fact that it was called while the country was at war, because of some of the statements the Commission had made in reports to Congress and certain opinions rendered by the Commission, and the broad scope of the investigation agenda, which appeared to include many sociological problems.

The witness urged that regulation be kept to an absolute minimum, and said it was his opinion that there should be no regulation on either direct or indirect industrial sales.

In discussing the service area question with Mr. Behling, Mr. Poe said that it was his idea that the authority granted to companies under the service area provisions should be limited to action to adequately serve the communities to which the lines are attached. He would require the pipe line companies to apply for authority to service any new community.

Answering Amos Matthews, counsel for the American Association of Railroads, Mr. Poe said he feels the railroads are inconsistent in that on the one hand they are converting rapidly to the use of diesels and electrification, and on the other are intervening to prevent others from obtaining whatever fuel they desire to use. He contended the railroads and coal interests have used obstructionist tactics in their interventions. He expressed the belief that an unregulated industry (coal) should not be allowed to retard the progress of an efficient, regulated industry (natural gas).

Mr. Poe declared that the FPC has shown some confusion in its administration of the Natural Gas Act, as indicated by various Commission opinions and reports, plus the natural gas investigation which indicates the FPC itself feels it needs some additional guidance.

In reply to a question by Tom McGrath, counsel for the coal interest, Mr. Poe expressed the belief that the FPC had exceeded its authority in its original action in the Bone, Iowa, case.

Mr. McGrath spent considerable time reading excerpts from addresses and articles by Mr. Poe and others in the industry which appeared contrary to the position taken generally by the industry, and he asked Mr. Poe to explain these seeming inconsistencies. The witness suggested that the excerpts were taken out of

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context and that therefore he could not comment on them, since without taking the sense of the entire articles or speeches into consideration he could not be sure he was reflecting the true meaning of the authors.

On the closing day of the hearing, P. A. Frye, executive director of Natural Gas Conservation for Louisiana, offered an exhibit seeking to prove that deeper drilling in the Louisiana coastal area had not, as had been contended, resulted in greater showings of gas than oil. However, Don Culton, counsel for the Natural Gas Industry Committee, developed the point that there must be considerable quantities of gas in those deep wells in order to bring out the oil in them.

Thomas Kennedy, Secretary-Treasurer of the United Mine Workers of America, read a statement in which he urged the federal government to prevent the expansion of natural gas because of the effect on coal mines. During cross-examination, Mr. Culton developed from the witness the fact that mine workers are interested selfishly in preventing the expansion of natural gas markets and he drew from Mr. Kennedy the statement that the UMWA would oppose invasion of coal markets by any other source of energy, whether hydro-electric, atomic energy, solar energy, or natural gas. He said they oppose the increased use of natural gas for any purpose, domestic, commercial or industrial if those owning natural gas lands contend that they should be allowed to realize on their investments at present, he said he could see no objection to the government buying up those lands and holding them for future use.

Mark G. Bluth, executive secretary of the Stoker Manufacturers' Association, a witness put on by the coal interests, testified that he had no fear that his industry could not compete satisfactorily against natural gas even at present rates, and asserted that even on a convenience basis stoker-fired coal equipment could compete with natural gas in the near future because of the prospective improvements in stoker equipment. The manufacture of stokers, he said, was curtailed during the war but with equipment now becoming available, he said he believed his industry will make great strides within the near future, since they figure their market is only 10% saturated.

The hearing was closed with the following statement from Commissioner Nelson Lee Smith:

"Before closing this final hearing in the Natural Gas Investigation, I want to express the Commission's appreciation for the fine spirit of cooperation which has been manifested by all those who have participated constructively in this inquiry. Throughout the course of the regional hearings and the one now being concluded here, interested parties have contributed in full measure to the development of information and views which will surely lead to a clearer understanding of the natural gas industry and its problems.

"It seems appropriate to say, too, that the broad scope of the inquiry has been amply justified as the only means whereby a comprehensive understanding of the problem as a whole could have been achieved. A more limited approach would necessarily have left uncertain the significance of any features of the entire interrelated processes of natural gas production, transmission, distribution, and marketing which were omitted. It is clear that because of the interdependence of these several processes, there must be knowledge of the whole if any part is to be fully understood. Also it seems not too much to say—as indeed many representatives of the gas industry have observed—that this Investigation has enabled the industry itself, as well as the Commission, to gain a better insight into the problems relating to the natural gas industry and its proper regulation in the public interest.

"It has been announced previously that interested parties desiring to do so may file with the Commission concise summary statements of position and recommendation following the conclusion of this Washington hearing. Such statements—perhaps somewhat different from the usual brief reviewing extensively the evidence of record—should be supported with reasons for the positions taken and recommendations suggested, together with such appropriate citations, illustrations and the like, from the record in this proceedings or from other recognized sources, as may be deemed necessary.

"I am authorized to announce that, to give ample time for the preparation of such statements, the Commission hereby extends the time for their filing until October 1, 1946, instead of thirty days following the conclusion of this hearing, as earlier directed.

"Parties are requested to notify the Commission not later than September 1 of intention to submit statements of position and recommendations. This request is made to facilitate the interchange of statements among parties submitting them.

"Subject to any understandings on the record concerning the furnishing of additional data and exhibits, and to the filing of the statements referred to above by October 1, these hearings are now closed."

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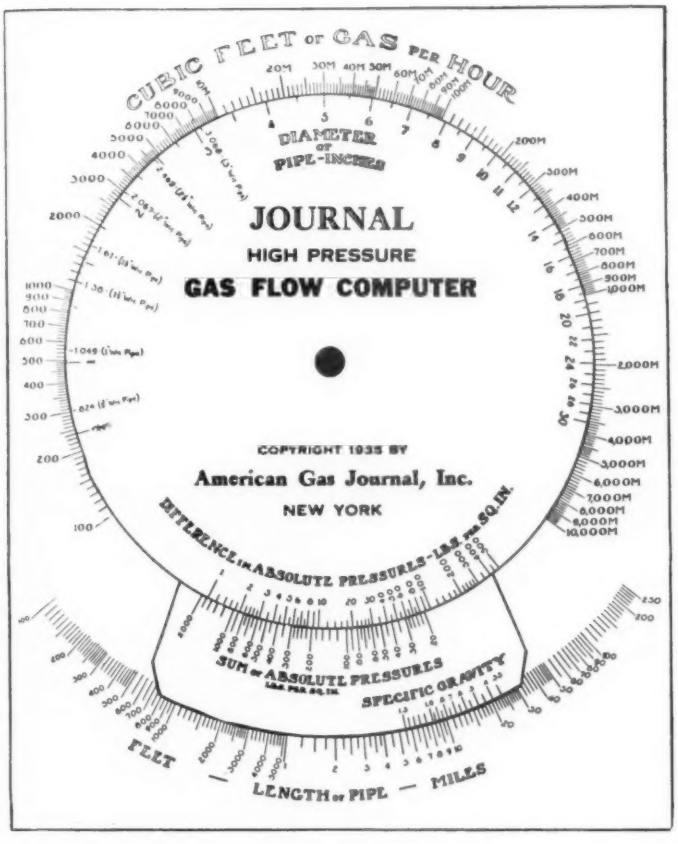

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Length of Pipe—Miles 1-250

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Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

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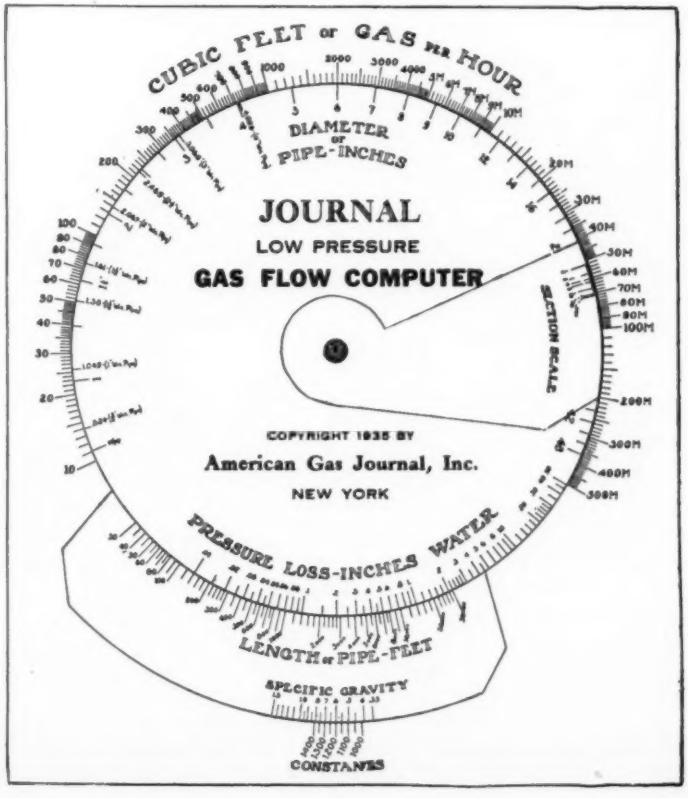

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Gas Progress and Products Will Feature A.G.A. Meeting

THE TWENTY-EIGHTH annual convention of the American Gas Association—the first full-fledged postwar meeting—takes place at Atlantic City, Oct. 7-11. Simultaneously, a great exhibition of gas appliances and equipment, sponsored by the Gas Appliance Manufacturers Association, will be held.

The pent-up energy and vitality of an awakened gas industry will also be reflected on the interest-packed programs of the general, departmental, and sectional meetings. Broad-gauged problems of industry-wide significance will be discussed by top-flight speakers, both within and without the industry, at the three general sessions and the employee relations forum.

There will also be meetings of the Natural Gas and Manufactured Gas Departments, and the Accounting, Residential Gas, Industrial and Commercial Gas, and Technical Sections. The always-popular Home Service Breakfast and an innovation—a Publication Editors' Breakfast — will round out the business program.

An attractive entertainment program has been arranged by the Entertainment Committee under the chairmanship of A. J. Gonnoud, president, Kings County Lighting Company.

Striking to the heart of vital problems, the convention gets under way Monday morning with meetings of the Association's two departments. Under Chairman R. H. Hargrove, United Gas Pipe Line Company, the Natural Gas Department will spotlight discussions of natural gas reserves, pipe line flow research, volume sales and recent developments in natural gas regulation.

The Manufactured Gas Department, led by Hudson W. Reed, chairman of the Department and president of The Philadelphia Gas Works Company, has arranged for authoritative presentations on topics of major importance to manufactured and mixed gas companies. An important feature of this meeting will be a symposium on the outlook for raw materials for manufactured and mixed gas companies from the standpoint of their availability and future costs.

Putting a finger on one of the nation's foremost industrial problems, an employee relations forum will be held Monday afternoon under the leadership of Fred R. Rauch, chairman of the Association's Personnel Committee, and vice-president, The Cincinnati Gas & Electric Company.

The Convention Program Committee, headed by Irving K. Peck, Manufacturers Light and Heat Company, Pittsburgh, has been tireless in putting together a general sessions' program of compelling interest.

J. A. Krug, Secretary of the Interior, Washington, D. C., addressing the Tuesday session will lead off an imposing array of speakers from outside the industry.

The gas industry's stepped up program of research and promotion with its many-faceted developments will be placed before the industry in the annual report of the Association's Managing Director, H. Carl Wolf. Speaking on "An Industry With a Program," Mr. Wolf will delineate the cardinal points in the industry's platform of progress.

The second general session, Wednesday evening, will be combined with an entertainment function wherein the business events will be followed by a musical concert. At this session Mr. Boothby will deliver his Presidential Address which will review the high spots of his administration and present his views on the prospects of the gas industry in the competitive postwar period.

A feature of the evening session will be the presentation of awards for outstanding individual and company achievements during the year.

The third general session, Thursday morning, will open with an analysis of the "Economics of Tomorrow's Business" by Prof. Erwin H. Schell, head of the Business and Engineering Administration, Massachusetts Institute of Technology, Boston

Ample time has been allowed between sessions for a thorough inspection of the manufacturers' exhibits and no events are scheduled for Wednesday afternoon, thus allowing further time for this activity.

Gas Industry Exhibit

MANY new technological advances developed by manufacturers in the gas appliance, equipment and supply field, will be presented for the first time publicly at the national exhibition of the Gas Appliance Manufacturers Association, to be held October 7-11 in Atlantic City, New Jersey, in conjunction with the Annual Convention of the American Gas Association.

Latest scientific developments, new products, demonstrations, dramatic use of color, light and motion will be features of the display.

Exhibitors' sketches reveal plans for striking presentation of gas refrigerators, gas ranges, heaters, air conditioning units, and many other products built with increased use of materials created during the war.

More than 130 exhibitors have already booked 55,880 square feet of floor space in the Atlantic City Auditorium, according to Mr. Lyle C. Harvey, president of the Gas Appliance Manufacturers Association. This total already exceeds the approximately 55,300 square feet of exhibits at the Association's 1936 Convention in Atlantic City, the highest previous record.

H. Leigh Whitelaw, managing director of G.A.M.A., announced the adjoining list of exhibitors as of Aug. 26th.

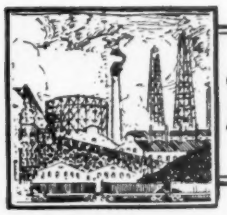
Gas men attending the Convention are invited to make their exhibit headquarters at the Commercial Cooking Appliance Center, Booths 422 to 424, which will be provided jointly by the Cleveland Range Company, Duke Manufacturing Company, G. S. Blodgett, J. C. Pitman & Son Sales Corporation, and Savory Equipment, Inc.

The purpose of this center is to provide a comfortable resting place for those who find conventioning tough and are looking for a place to rest their weary dogs. It will be set up as a rendezvous for Commercial Gas men who can use it as a message clearing house, also as a place to meet or locate friends and business acquaintances.

G.A.M.A. EXHIBITION, ATLANTIC CITY

LIST OF EXHIBITORS

American Cast Iron Pipe Company, Birmingham, Ala.
American Gas Association, New York
American Gas Journal, New York
American Meter Company, New York
American Radiator & Stand. San. Corp., Pittsburgh, Pa.
American Stove Company, Cleveland, Ohio
Autogas Company, Chicago, Illinois
Automatic Gas Equipment Co., Pittsburgh, Pa.
Baier & Ackerman, Inc., New York
Barrett Div. Allied Chemical & Dye Corp., New York
Barton Co., The, Minneapolis, Minn.
Bastian-Morley Co., Inc., La Porte, Ind.
Bendix Home Appliances, Inc., South Bend, Ind.
Blodgett Co. Inc., The G. S., Burlington, Vt.
Briggs Filtration Co., Bethesda, Md.
Calgon, Inc., Pittsburgh, Pa.
Caloric Gas Stove Wks., Philadelphia, Pa.
Chace Co., W. M., Detroit, Mich.
Chaplin-Fulton Mfg. Co., The, Pittsburgh, Pa.
Cleveland Heater Co., The, Cleveland, Ohio
Cleveland Trencher Co., The, Cleveland, Ohio
Clow & Sons, James B., Chicago, Ill.
Columbia Burner Co., Toledo, Ohio
Connelly Iron Sponge & Governor Co., Chicago, Ill.
Consolidated Industries Inc., Lafayette, Ind.
Coroaire Heater Corp., Cleveland, Ohio
Cory Corporation, Chicago, Ill.
Cribben & Sexton Co., Chicago, Ill.
Crosley Corporation, Cincinnati, Ohio
Cruse-Kemper Co., Ambler, Pa.
Cutler-Hammer, Inc., Milwaukee, Wisc.
Dearborn Stove Co., Dallas, Texas
Detroit Brass & Malleable Wks., Detroit, Mich.
Detroit Gas Regulator Co., Detroit, Mich.
Detroit Lubricator Co., Detroit, Mich.
Detroit-Michigan Stove Co., Detroit, Mich.
Dresser Industries, Inc., Cleveland, Ohio
Economy Governor Co., Anderson, Ind.
El Van Ayre Corporation, Detroit, Mich.
Estate Stove Co., New York
Electro Specialty Co., Minneapolis, Minn.
Fisher Governor Co., Marshalltown, Iowa
Fisher Process Mfg. Co., Chicago, Ill.
Fluor Corp. Ltd., The, Los Angeles, Calif.
Gas Consumers Association, New York
Gas Institute of Technology, Chicago, Ill.
Gas Purifying Materials Co., Long Island City, N. Y.
General Controls Co., Glendale, Calif.
General Gas Light Co., Kalamazoo, Mich.
Glasby Mfg. Co., Inc., J. P., Belleville, N. J.
Glenwood Range Co., Taunton, Mass.
Hamilton Mfg. Co., Two Rivers, Wisc.
Hardwick Stove Co., Cleveland, Tenn.
Harper-Wyman Co., Chicago, Ill.
Handley Brown Heater Co., Jackson, Mich.
Heating Research Corp., Butler, Pa.
Hi-Glo Radiant, Inc., New York
Hotstream Heater Co., The, Cleveland, Ohio
International Business Machines, New York
Jenkins Publications, Los Angeles, Calif.
Johns-Manville Sales Corp., New York
Kelsey Co., Fenton, Madison, Wisc.
Lambert Meter Co., Plainfield, N. J.
Lawson Mfg. Co., Pittsburgh, Pa.
Lincoln Brass Wks., Inc., Detroit, Mich.
Lovekin Water Heater Co., Phila., Pa.
Lundt, Inc., Ernest C., Montclair, N. J.
Lux Clock Mfg. Co., Inc., Waterbury, Conn.
Magikitch'n Equipment Corp., Quakertown, Pa.
McWane Cast Iron Pipe Co., Birmingham, Ala.
Mears-Kane-Ofeldt, Inc., Phila., Pa.
Mid-Continent Metal Prods. Co., Chicago, Ill.
Milwaukee Gas Specialty Co., Milwaukee, Wisc.
Minneapolis-Honeywell Reg. Co., Minneapolis, Minn.
Mirror Patented Stove Pipe Co., Hartford, Conn.
Morganite, Inc., Long Island City, N. Y.
Mueller Furnace Co., L. J., Milwaukee, Wis.
Mulcare Engineering Co., Inc., New York
Nassif Co., David, Boston, Mass.
National Cash Register Co., The, Dayton, Ohio
National Lock Co., Rockford, Ill.
National Radiator Co., Johnstown, Pa.
Norman Products Co., Columbus, Ohio
Olsen Mfg. Co., C. A. The, Elyria, Ohio
Owens-Corning Fiberglas Corp., Toledo, Ohio
Peerless Mfg. Corp., Louisville, Ky.
Perfex Corp., Milwaukee, Wisc.
Pipe Line Service Corp., Franklin Park, Ill.
Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., Pittsburgh, Pa.
Pittsburgh Water Heater Corp., Pittsburgh, Pa.
Public Utilities Reports, Inc., Washington, D. C.
Reynolds Gas Regulator Co., Anderson, Ind.
Rheem Manufacturing Co., New York
Richmond Radiator Co., New York
Robbins Publishing Co., New York
Rochester Appliance Corp., New York
Roberts Brass Mfg. Co., The, Detroit, Mich.
Roberts-Gordon Appliance Corp., Buffalo, N. Y.
Roberts & Mander Corp., Hatboro, Pa.
Robertshaw Thermostat Co., Youngwood, Pa.
Roper Corp., Geo. D., Rockford, Ill.
Ruud Manufacturing Co., Pittsburgh, Pa.
S. & S. Heating Co., Inc., Detroit, Mich.
Schoenberger, W. J., Cleveland, Ohio
Schrader Mini-Craft Co., Pittsburgh, Pa.
Security Manufacturing Co., Kansas City, Mo.
Semet Solvay Engineering Corp., New York
Servel, Inc., Evansville, Ind.
Silex Co., The, Hartford, Conn.
Skinner Co., M. B., South Bend, Ind.
Smith Corporation, A. O., Milwaukee, Wisc.
Smith Mfg. Co., The A. P., East Orange, N. J.
Sprague Meter Co., The, Bridgeport, Conn.
Sprouse Co., Inc., V. E., Columbus, Ind.
Stacey Mfg. Co., The, Cincinnati, Ohio
Standard Gas Equipment Corp., Baltimore, Md.
Stewart-Warner Corp., Indianapolis, Ind.
Strait & Richards, Inc., Newark, N. J.
Superior Meter Co., Inc., Brooklyn, N. Y.
Surface Combustion Corp., Toledo, Ohio
The Tapecoat Co., Evanston, Ill.
Tappan Stove Co., Mansfield, Ohio
Thatcher Furnace Co., Garwood, N. J.
Titan Valve & Mfg. Co., The, Cleveland, Ohio
United Engineers & Constructors, Inc., Phila., Pa.
U. S. Pipe & Foundry Co., Burlington, N. J.
Vendo Co., The, Kansas City, Mo.
Wailes Dove-Hermiston Corp., Westfield, N. J.
White-Rodgers Elec. Co., St. Louis, Mo.
Wilcolator Co., The, Elizabeth, N. J.
Wood Mfg. Co., Inc., John, Conshohocken, Pa.
Wood Company, R. D., Phila., Pa.



News of the Gas Industry

F.P.C. Determines Central New York Power Co. "Natural Gas Co."

The Central New York Power Corporation, Syracuse, New York, is a natural gas company within the meaning of the Natural Gas Act and is subject to regulation under the act, the Federal Power Commission determined in an order and opinion made public Aug. 12th. The order dismissed without prejudice the company's application for a permit to construct new facilities on the ground that plans for such construction were still in formative stages and that information supplied was not comprehensive enough for Commission action.

The application requested authorization to construct facilities to convert the company's present mixed and manufactured gas system to the service of natural gas to customers in Oswego, Onondaga, Madison, Jefferson, Oneida, Herkimer, and Fulton Counties in New York. Construction proposed included about 45 miles of 12 or 14-inch line, about 61 miles of 6-inch line and a 1200 HP compressor station in the vicinity of Syracuse.

Central New York Power Corporation at present serves mixed and manufactured gas in the areas mentioned above. Natural unmixed gas is supplied to Central New York Power by New York State Natural Gas Corporation which transports the gas from Pennsylvania. Such gas is received from New York State Natural at Therm City, New York, where it is transported to Central New York Power's Hiawatha mixing plant near Syracuse. From there, gas composed of a mixture of natural and manufactured gas is distributed to consumers in the Syracuse-Oswego division and a portion of the gas is transported to the city limits of Syracuse for sale to Syracuse Suburban Gas Company.

F.P.C. Removes Limitations

Petitions of the New York State Natural Gas Corporation, Pittsburgh, Pennsylvania, for removal of limitations on its sales of natural gas in New York and Pennsylvania were granted by a Federal Power Commission order. The restrictions were placed upon the company in 1944 and limited the number of its customers and the amounts of gas which could be delivered to them.

The order also lifted restrictions applying to sales of natural gas by Hope Natural Gas Company, United Fuel Gas Company, The Manufacturers Light and Heat Company and the Home Gas Company to supply areas in northern Pennsylvania and western New York.

New York State Natural's present customer companies which the order affects include New York State Electric and Gas Corporation, Central New York Power Corporation, Empire Gas and Fuel Company, North Penn Gas Company and Allegany Gas Company, Penn-York Natural Gas Company, and Dempseytown Gas Company. New customers proposed to be served include United Natural Gas Company, Hanley and Bird, and those to be added upon acquisition by New York State Natural of the property of Godfery L. Cabot, Inc., and Cabot Gas Corporation.

Gas Appliance Manufacturers at Hotel Exposition

The 31st National Hotel Exposition, Grand Central Palace, New York, November 11 to 14, 1946, will be the year's best opportunity to see the latest in gas food service equipment which will be displayed in the Combined Commercial Gas Cooking Exhibit sponsored by American Gas Association and leading manufacturers of commercial gas cooking equipment. At this first postwar combined exhibit, filling the entire north wall of the main exhibit floor, nine of the leading manufacturers of gas cooking equipment will have their latest appliances on view for hotel and restaurant men.

A variety of equipment will be shown including ranges, fryers, ovens, warming tables, toasters and allied equipment for the commercial kitchen. The cooperating manufacturers in the Combined Exhibit are: American Stove Company; The G. S. Blodgett Co., Inc.; The Cleveland Range Co.; Detroit-Michigan Stove Co.; Ershler & Kruken, Inc.; J. C. Pitman & Sons, Inc.; Savory Equipment, Inc.; Standard Gas Equipment Corp.

An attractive setting will be provided for this exhibit, which will be attended by thousands of hotel men from all over the country. Commercial gas men have always been well represented at the Hotel Exposition, and will have this opportunity of meeting with gas equipment manufacturers, users and potential users of gas cooking appliances.

Propane Air Gas Plant For Albany, Ga.

A contract has been awarded to Stacey Dresser Engineering of Cleveland, Ohio, Division of Stacey Bros. Gas Construction Company, of Cincinnati, Ohio, for the design and installation of a propane-air gas plant at City of Albany, Ga.

This plant will produce 312,000 standard cubic feet per day of 550 BTU propane-air gas and is designed at other lower capacities so as to meet variable peak winter load requirements.

Complete unloading and liquefied propane storage facilities will also be provided. The generating equipment will include a BTU recorder and controller.

CONVENTION CALENDAR

September

9-11 *Sixth Annual Appalachian Gas Measurement Short Course,* West Virginia University, Morgantown, W. Va.
10-12 *Pacific Coast Gas Association,* Annual Convention, Fairmont Hotel, San Francisco.
12-13 *Midwest Industrial Gas Council,* The Radisson Hotel, Minneapolis, Minn.
13-14 *Technical Section, Gas Meters Assn. of Florida and Georgia,* Clearwater, Florida.
20 *Oklahoma Utilities Assn.,* Gas Division, Annual Fall Meeting, Biltmore Hotel, Oklahoma City.
23 *Midwest Gas Sales Council,* Residential Gas Section, A. G. A., Edgewater Beach Hotel, Chicago.
23-25 *National Butane-Propane Association,* Convention and Trade Exhibit, Continental Hotel, Chicago.
26 *New England Gas Assn.,* Managers Conference, Copley Plaza, Boston.

October

7-11 *American Gas Association,* Annual Meeting, Atlantic City, N. J., Convention and Exhibition.
7-11 *National Safety Congress* and Exposition, Stevens Hotel, Chicago.
28-30 *Midwest Gas Assn.* and Iowa State College Gas School and Conference, Ames, Iowa.

November

18-22 *National Metal Congress* and Exposition, Atlantic City, N. J.

December

2-6 *Amer. Soc. Mechanical Engineers,* New York.
2-6 *National Exposition,* Power and Mech. Eng'g., Grand Central Palace, New York.

1947

March

20-21 *New England Gas Association,* Annual Meeting, Boston, Mass.

Industrial and Commercial Section A.G.A.

The Program Committee of the Industrial and Commercial Gas Section, American Gas Association, under the Chairmanship of Frank H. Trembly, Jr., has prepared an outstanding program with many interesting features for this Section's part in what promises to be the greatest annual meeting of the Association. Atlantic City, N. J., during the week of October 7.

Of special interest to industrial and commercial gas men, and executives, will be this Section's program on Tuesday and Thursday afternoons, October 8 and 10. Starting with a luncheon on Tuesday, October 8, in the Rose Room of the Hotel Traymore, the guests will be addressed by an outstanding industrialist whose topic will be "Future Industrial Production." Immediately following the luncheon there will be a Section session. "Our Equity in Industry" will be the first talk of the afternoon by a well-known utility executive. Of particular interest to commercial gas men will be the talk by I. S. Anoff of Food Service Equipment Industry, Inc., whose topic will be "A Modern Alliance." W. M. Jacobs of the Southern California Gas Co. will be another speaker that afternoon who will address the meeting on "Organizing for Accomplishment." Following his talk "Gene" Milener of A.G.A. will tell of "Things To Come" in presenting the activities in Industrial and Commercial Gas Research.

The Section session will be continued on Thursday afternoon, October 10, when Leon Ourusoff will present "Objectives in the Food Service Field." Other topics of interest to gas men will be "Standard Brass Foundry Practices As They Affect Gas Sales," by W. Wirt Young, and "Selling Gas For Firing Large Boilers" by L. S. Reagon, Webster Engineering Company.

Following these talks there will be a panel discussion on New Developments in Industrial Furnaces and Ovens presented by representatives of five furnace and oven manufacturers.

Special Combination Range Requirements Proposed

Approval requirements for combination ranges, separate and distinct from those for standard gas ranges, have been formulated by a special subcommittee of the range reqiurements group, appointed by its chairman, C. C. Winterstein.

The new group met in Boston on June 27 and 28 with advisory representatives of manufacturers and utility companies. Resulting requirements will be presented to the gas range subcommittee for approval at its next meeting.

The proposed requirements cover only dual oven type combination ranges, in which the oven is heated either by gas or supplementary fuel. Due to specialized construction, peculiar to these ranges, it was agreed that requirements covering them could not duplicate those for straight gas ranges. Appropriate revisions have therefore been included to make the proposed text applicable to combination units. For example, since dual oven ranges must be located appreciable distances from walls, accessibility for adjusting or servicing, from the front of the range is not required as in the case of conventional gas ranges. On the other hand, damper rod mechanisms are often operated directly from oven or broiler gas valves. Accordingly, a requirement has been added to eliminate leakage caused by binding of mechanisms or displacement of valve plugs.

Important modifications have been made in performance test procedures. Top burner and pilot operations and automatic top lighting must be satisfactory when the oven is maintained at baking temperatures by the supplementary fuel section. Temperatures of gas valve bodies must be within accepted limits under similar conditions. Likewise, tests have been specified to insure satisfactory performance of the oven burner when the top section of the range is heated by supplementary fuels. Such fuels may be either oil, anthracite coal, or bituminous coal.

Miss Janota Joins A. G. A. Publicity Bureau

Miss Alice M. Janota has joined the Publicity Bureau of the American Gas Association as an assistant director in charge of domestic gas publicity. In her new capacity, Miss Janota will direct publicity and services covering the domestic use of gas in homes for national magazines, women's pages of newspapers and women's programs in radio.

Alice M. Janota

Graduated from Pennsylvania State College in 1941 with a degree of B.S. in Home Economics, Miss Janota was Assistant to the Dietitian of the Navy Cafeteria in Washington, D. C., and Editorial Assistant of Food Industries Magazine. Previous to joining the American Gas Association, she served as Assistant Food Editor of the Fawcett Women's Group, Fawcett Publications.

Miss Janota is a member of the American Home Economics Association and Home Economics In Business.

A. G. A. Publishes Hot Water Booklet

For promoting the sale of automatic gas water heaters by focusing national attention on home laundering and the importance of high water temperatures to comfortable living, the American Gas Association has published a 24-page, three-color booklet entitled "Hot Water Magic."

Simply written and attractively illustrated, this brochure will bring to housewives and students, a wealth of valuable information concerning new methods required for laundering new fabrics and finishes. It contains suggestions ranging from removal of stains to the laundering of krene, selon, fiberglas and other plastic and synthetic fabrics.

The booklet was produced in two editions; one for the use of home economists in colleges and schools and the other for distribution to customers of the local gas companies. The consumer booklet is the same as the school manual except that it carries a heavier sales emphasis on gas water heaters and gas clothes driers. Both booklets were produced by the Promotional Bureau for the Water Heating Committee of the Association's Residential Gas Section. The work was under the direction of John H. White, Jr., Director of Promotion for the American Gas Association.

Calvert Rejoins Laboratories Staff

Lieutenant Edward C. Calvert, aerological officer with the United States Navy for the past three years, has returned to the Laboratories and resumed his duties in the research department. He is currently engaged in an investigation of high heating value butane-air mixtures for the purpose of selecting an appropriate test gas.

Lieutenant Calvert graduated from Penn State College in 1941 with a degree in Petroleum and Natural Gas Engineering. He joined the Laboratories staff immediately upon graduation.

Dr. Zimmerman To Receive Research Award

The American Society for Metals announces that Dr. Rufus E. Zimmerman has been elected to receive the Society's Medal for the Advancement of Research for 1946. Dr. Zimmerman is vice president in charge of Research and Technology of the United States Steel Corporation of Delaware. His offices are in New York and Pittsburgh.

The medal was first awarded in 1943 to Roy A. Hunt, president of the Aluminum Company of America. It was won in 1944 by Robert C. Stanley, president of the International Nickel Company, and in 1945 went to Gerard Swope of the General Electric Company.

Award of the medal, plaque and citation will be made at the annual banquet of the American Society for Metals to be held in Atlantic City, New Jersey, on November 21st during the National Metal Congress and Exposition.

Bids On "Big Inch" Lines Opened

Sixteen proposals to buy or lease the Big and Little Big Inch Pipe Lines were opened publicly July 31 by the War Assets Administration. Many of the offers embrace special conditions for both operating and financing the lines. Main points of each of the bids follows:

E. Holley Poe and Associates, New York City, E. DeGolyer, Dallas, Texas, and Charles I. Francis, Herman Brown and George Brown, Houston, Texas, lease arrangement providing for a minimum annual rental of $6,500,000, or a total of not less than $260,000,000 over a 40-year period, or purchase for $100,000,000, for transportation of gas; John Bauer, New York City, purchase at $70,000,000 to furnish petroleum products and natural gas to oil refineries, dealers, and gas distributors, would consider possibility of converting both lines to gas; Big Inch Oil, Inc., New York City, to purchase for $110,000,000 for use as common carrier of petroleum; Big Inch Natural Gas Transmission Company, Washington, D. C., to purchase for $85,000,000 for gas transmission; W. Lee Clements, Barton, Arkansas, marketing cooperative for transmission of oil and gas on a lease basis with option to buy; J. W. Crotty, Dallas, Texas, to purchase for $127,500,000, using Big Inch for gas, Little Inch for oil, wants FPC guarantee to permit maximum price of 30c per Mcf for gas; L. M. Glasco, Dallas, Texas, oil operator, to lease Little Big Inch and relay it from the Permian Basin in Texas to California, to pay lease rental of 5c per barrel with option to buy; Frank M. McGraw, Anniston, Alabama, to operate as common carrier for oil and oil products, to purchase at $146,000,000 less depreciation; Petroleum Royalty Corporation, Dallas, Texas, preliminary offer of 15% of gross income for a period of 30 years, wants to transport natural gas with option to move whatever products prove feasible; Glenn McCarthy, Houston, Texas, to purchase for $80,000,000 for transportation of natural gas; Syndicated Industries, Inc., New York City, to lease for transportation of petroleum on basis of ½c per barrel; Noyack Oil Corporation, Tulsa, Oklahoma, to purchase for $80,000,000 to transport petroleum, also alternative proposal to transport natural gas; Russell Palmer, Washington, D. C., to purchase for $135,000,000 for petroleum service, or $115,000,000 if necessary to convert to natural gas; Ryford Pipe Line Company, Chicago, Illinois, to purchase Little Big Inch for $30,000,000, if necessary will pay $40,000,000 for Big Inch; Trans-Continental Gas Pipe Line Company, Inc., to purchase for $85,000,000 for transportation of natural gas; Sinclair Refining Company to purchase only feeder lines in the New York-Pennsylvania area, no purchase price specified.

Nearly all of those submitting bids to use the lines for the transportation of natural gas specified that they would be willing to retain the oil transmission facilities that would have to be taken off the lines for standby in case the armed services desired to use them for transportation of oil in case of another national emergency.

FPC Overruled in Important Case

The Court of Appeals for the District of Columbia has handed down an opinion prescribing that where two regulatory commissions are in controversy as to which shall control the cost accounting of a utility company, the company is entitled to have determined by a declaratory judgment which commission shall be awarded such control.

By its action, the Appeals Court also declared that the company in such a dilemma does not have to await a final order by a regulatory body, such as the FPC, before seeking such declaratory judgment.

The case arose as the result of the Arkansas Power and Light Company bringing suit against the FPC and the Arkansas Commission on the grounds that each of those agencies claimed exclusive jurisdiction to control its "official corporate accounting records," that it had complied with the Arkansas Commission's order as to what its books should show and therefore could not write out of its accounts certain items allowed by the Arkansas Commission and directed to write out by an FPC staff report. The FPC ordered the utility to show cause why it should not set up its books as proposed by the staff report.

The United States District Court dismissed the Company's complaint on the grounds of lack of jurisdiction, the FPC having contended that the Company had no basis for the filing of a complaint since it had made no final order from which appeal could be taken. However, the Appeals Court reversed the District Court, holding that "The confusion as to the issues which is apparent in the briefs filed with us should be dispelled by the realization that a public utility cannot keep more than one set of actual, official corporate accounts. Neither can any other corporation, for that matter." The Appeals Court also held that "in such circumstances (as those presented in the instant case), a utility should be able to learn from a declaratory judgment which commission has exclusive jurisdiction," thereby overruling the FPC contention that it must always have made a final order before any person aggrieved may obtain a judicial review of its action.

Nicholson A. G. A. Representative to Motion Picture Industry

H. D. Nicholson, prewar member of the Southern California Gas Company's sales department training staff, has been appointed representative of the American Gas Association to the motion picture and radio industries in Hollywood.

He succeeded to the post and will continue the gas industry goodwill program developed by Deke Houlgate in this special contact activity.

Nicholson spent 47 months in the Navy, part of the time as executive officer in a Navy V-12 college and partly in the civil readjustment offices separation center. He returned to his duties in the Southern California Gas Company's sales department shortly after the close of the war.

Hays Mfg. Co. Appoints Moran New England Sales Repr.

Mr. L. F. Moran of Worcester, Mass., has been appointed New England Sales Representative of the Hays Manufacturing Company, Erie, Pa.

Mr. Moran has lived for a number of years in New England where he was associated with the General Electric Company, engaged in various aspects of the manufacture, merchandising, wholesale distribution and sale of electrical appliances.

Have you considered a
CHECK-UP
of
GAS PLANT PERFORMANCE
Investigations and Reports
by Qualified Engineers
COAL CARBONIZING COMPANY
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IRON HYDROZINC
The mark of
unerring dependability
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GAS PURIFYING MATERIALS CO., INC.
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Long Island City 2, New York

Gas Meters Association of Florida-Georgia

There will be a Technical Session of the Gas Meters Association of Florida-Georgia at the Clearwater Beach Hotel, Clearwater, Florida, on September 14th. Tentative program, largely devoted to L. P. Gas discussions, is as follows:

"L. P. Gases for Peak-Load Shavings"; Francis E. Drake, Pacific Gas Corporation, New York.

Substitution of L. P. Gases for Manufactured Gases in small and medium Gas Systems; Robert W. Brandt, Rulane Gas Company, Charlotte, N. C.

Experiences in Converting Gas Properties to L. P. Gases; Bill Lee, Atlanta Gas Light Company, Valdosta, Georgia.

How to Set Up a Self Functioning Safety Committee in a Gas Property; R. P. Jones, Central Florida Gas Corporation, Winter Haven, Florida.

Safety Precautions in the Handling of L. P. Gases; F. B. Surguine, South Atlantic Vapo Gas Company, Orlando.

The program will be followed by a Round Table discussion. J. W. Owen of Winter Haven, Fla., is secretary of the Association and Secretary-Treasurer of the Central Florida Gas Corporation.

Gas Equipment at National Metal Congress

A preview of the National Metal Congress and Exposition to be held in Atlantic City's Public Auditorium, November 18 to 22, 1946, indicates that the gas industry will be widely represented in the first postwar American Gas Association Combined Industrial Gas Exhibit.

The A.G.A. Combined Exhibit will occupy the largest single exhibit area in the exposition. A striking and attractive display design will be in keeping with the magnitude and prestige of the gas industry.

The fourteen manufacturers of industrial gas equipment who are cooperating with the American Gas Association to show the new ideas, new developments and new equipment available to industry for processing that requires heat are: American Gas Furnace Company; Bryant Heater Company; Burdett Mfg. Co.; Carbomatic Corp.; Eclipse Fuel Engineering Co.; The Gas Machinery Co., Gehnrich & Gehnrich, Inc.; Charles A. Hones, Inc.; Intercontinental Engineers, Inc.; The C. M. Kemp Mfg. Co.; Mid-Continental Metal Products; Selas Corporation of America; Surface Combustion Corp.

The National Metal Congress and Exposition is always attended by a large number of industrial gas men and manufacturers' representatives. Industrial gas men find the Congress and Exposition an excellent opportunity to make close contacts with customers in their territories who are in attendance.

A highlight of Metals Week in Atlantic City will be the traditional Industrial Gas Breakfast on November 20 where gas men, industrialists and manufacturers meet with the editors of the metals magazines for an annual get-together.

Controllers Institute Elects Control Division Officers

At the annual meeting of the Birmingham Control of the Controllers Institute of America, Raymond Beeny, secretary and treasurer of The Alabama Gas Company, was elected president and director; and H. Gordon Calder, vice president and treasurer of the Southern Natural Gas Company, was elected director of the same Control.

J. H. Clawson, assistant treasurer of the Puget Sound Power & Light Company, was elected president by the Seattle Control of the organization.

Paul B. Murphy, assistant treasurer of the Central New York Power Corp., was elected first vice president of the Syracuse Control; while Charles L. Carr, assistant controller of the Potomac Electric Power Company, becomes secretary of the District of Columbia Control.

The following public utilities executives were elected as directors of their local control of the organization: Ottis T. Fitzwater, assistant treasurer and assistant secretary of Indianapolis Power and Light Company, re-elected by the Indianapolis Control; Frank L. Griffith, vice president and comptroller of the Peoples Gas, Light and Coke Company, Chicago; E. G. Kellett, assistant secretary and assistant general auditor of the Northern States Power Co., and D. W. Peterson, secretary and assistant treasurer of the Minneapolis Gas Light Company in Minneapolis, both of the Twin Cities Control; L. M. La Porte, controller of the Wisconsin Electrical Power Company, Milwaukee Control; Bernard S. Rodey, Jr., associated controller of the Consolidated Edison Company of New York; A. H. Schettler, comptroller of the Union Electric Company of Missouri, St. Louis Control; and Ralph H. Smith, controller of the Cleveland Electric Illuminating Company, Cleveland Control.

The Institute is a technical and professional organization of controllers devoted to the improvement of controllership procedure.

Natural Gas in Wisconsin

In 1945 the Wisconsin Southern Gas Co. obtained permission to have natural gas piped from the Illinois border to the Lake Geneva area in Wisconsin. The pipe line was extended and has been in operation for some months. The original distance was less than 50 miles. Now the Wisconsin Southern has been granted permission to supply natural gas to a number of cities and towns in southern Wisconsin, in the Lake Geneva area, including Burlington, Elkhorn, Pell Lake, Delavan, Lake Como and other territory around Lake Geneva. The sum of $237,000 has been authorized for adding transmission and distribution lines in the area mentioned, both for the distribution of natural gas and to strengthen the company's facilities in general. One item mentioned is the installation of equipment for manufacturing gas in case of failure of the natural gas, where the latter is used. This is to be a two year program, but the work will be begun in 1946.

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FOR EXPERIENCE IN SOLVING YOUR PROBLEMS OF *GAS STORAGE AND PROCESSING EQUIPMENT*

Consulting with us does not obligate you--but we do want to acquaint you with STAMANCO'S record of past performance--a record that has always been outstanding, from the dawn of the Gas Industry in America right up to the present. It's a record that will guide you to the most dependable equipment for YOUR needs.

Shown at the left is a STAMANCO Gas Holder recently installed in Florida. All-Welded Panel construction; capacity 150,000 cu. ft.

STAMANCO WET SEAL GAS HOLDERS

Let's get together at our Booth No. 617 American Gas Association Convention Atlantic City—October 7-11.

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CINCINNATI 16, OHIO
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GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES

ENGINEERS • FABRICATORS • CONSTRUCTORS

An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

Calif. Railroad Commission Permits Unmetered Service

The California Railroad Commission early in August approved a new emergency rule and regulation under which gas utilities are permitted to provide unmetered service by by-passing meters.

The ruling was adopted by the Commission as an emergency measure to relieve a critical shortage of gas meters and granted Southern California Gas Co., the first applicant under the new setup, permission to render temporary unmetered service in certain instances.

In cases where the usage has not exceeded the minimum charge for two months or more, the utility can choose, with the consent of the customer, to remove the meter and render a bill on a flat rate equivalent to the minimum charge.

Where the consumer receiving residential service gives written authorization after having been supplied with gas for 12 months or longer on the same premises, the company is permitted to remove the meter and furnish unmetered service, billing each month on the basis of consumption of the corresponding month during the previous year.

Where the volume of gas used by non-residential consumers is subject to reasonably accurate estimation, the utility may establish unmetered service upon receipt of written authorization of the consumer and render estimated bills.

The ruling became effective August 1. Southern California Gas Co. and Southern Counties Gas Co. announced intention of taking advantage of the regulation when the meter shortage develops to a point which requires such steps. At present a shortage only exists in industrial size meters.

Plans of the two Los Angeles gas companies are to make no charge for removal or installation of meters or for the connections.

Heat Book Published By Surface Combustion

"Automatic Heat For Real Living" is a 56-page, pocket-size booklet just published by Surface Combustion Corp., Toledo, O., for distribution to the public through gas utility companies and the heating manufacturer's Janitrol dealers. It describes for the layman in clear, understandable language what heating comfort is and how to get it.

The book should prove valuable to the heating trade in supplying prospects and customers with authoritative information and in answering their questions on residential heating. It tells how to get the degree of comfort wanted in both new houses and the modernization of homes. The advantages of and applications for warm air, gravity and forced circulation; hot water, both gravity and forced circulation; steam, 1-pipe and 2-pipe and vapor; split systems and radiant panel systems with forced warm air or hot water all are discussed impartially.

The layman who reads "Automatic Heat For Real Living" will have a better idea of how to determine the system he should have, what to check for in the house he buys, an explanation of common heating terms and a better general understanding of the importance of heating to him and his family.

Newquist Elected V. P. Roots-Connersville

Ralph R. Newquist has been elected Vice President in Charge of Sales of Roots-Connersville Blower Corporation, Connersville, Ind., one of the Dresser Industries.

Ralph R. Newquist

A native of Youngwood, Pa., and a graduate of Pennsylvania State College, Newquist has been successively employed by the Reliance Electric & Engineering Company, the Louis Allis Company, and Allis-Chalmers Mfg. Co.

He is a member of A.I.E.E., the Society of Naval Engineers, and the American Society of Naval Architecture and Marine Engineering.

Hangosky With Roberts Brass

Frank E. Hangosky has been appointed Sales Engineer of the Roberts Brass Mfg. Co., Detroit, Mich.

Prior to joining the staff of Roberts Brass, Mr. Hangosky was employed nine years with the Cleveland Laboratories of the American Gas Association. There he was employed in the appliance testing and inspection departments.

Plastic Pipe for Services

Believed to be the first practical use of plastic pipe on a large scale by a gas company anywhere, Southern California Gas Co. has begun the installation of plastic pipe as a means of meeting an acute shortage of steel pipe for services.

Installation of plastic pipe, which was started in July, followed some two years of testing with that type of pipe by Southern California Gas Co. which late in 1944 laid a test line of plastic pipe in Los Angeles to determine its practicability.

In August the company had in stock approximately 100,000 feet of plastic pipe which, according to the firm's distribution manager, Elting Henderson, will probably be installed this fall. Two crews of the company's central division have been assigned to the laying of plastic pipe.

Meanwhile, the distribution department, Henderson declared, is continuing to install steel and copper pipe whenever that material is available.

The degree to which Southern California Gas Co. intends to make plastic pipe installations depends, Henderson declared, on when and in what amounts other kinds of pipe become available and how the plastic pipe program works out.

Stuckey Chief Engineer Moore Corp.

Warren Stuckey has been appointed chief engineer of the Moore Corporation, Joliet, Ill., manufacturer of stoves, ranges and heaters, according to announcement by Bernard J. Hank, Conlon Corporation, Chicago, Moore's president.

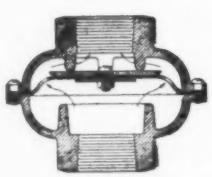
Mr. Stuckey spent ten years as chief testing engineer of the Florence Stove Co., Kankakee, Ill., including service as chief research engineer.

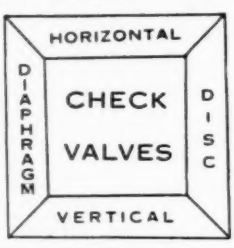
Chemical Show and Convention To Be Held in Chicago

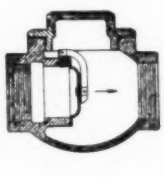
The Fourth National Chemical Exposition will open September 10 and continue through September 14 at the Coliseum, Chicago, Ill. ACS sessions will be held at the Palmer House, Stevens Hotel and in other downtown hostelries.

The show is sponsored as heretofore by the Chicago Section of the American Chemical Society.

Pressure Controls for Gas and Air







NORWALK VALVE COMPANY

Manufacturers of Connelly Governors, Valves and Gauges

33 Railroad Ave. South Norwalk, Conn.

Propane-Air Plant for Cincinnati, O.

Award of a contract from the Cincinnati Gas and Electric Company to handle the engineering and supervision of erection of what will be the fourth largest propane-air plant in the gas utility industry is announced by E. A. Flaschar, General Manager of Stacey-Dresser Engineering, a division of Stacey Bros. Gas Construction Company, one of the Dresser Industries.

E. A. Flaschar

Other similar Stacey-Dresser propane-air plants now in the process of erection include the five largest installations in the country and will serve the gas utilities in Columbus, Detroit, Toledo, Boston, and Binghamton, New York.

"As engineering consultants to the gas utility field," Flaschar said, "Stacey-Dresser is equipped to supply complete engineering service, including process and mechanical design, purchasing, expediting, and inspection."

Formerly vice-president of Hydrocarbon Research, Inc., Flaschar was for nine years executive engineer of the M. W. Kellogg Company and for eight years assistant chief engineer in one of the Standard Oil Company of California refineries.

Quality Publishes New Cabinet Catalog

A new full-color catalog featuring Quality Steel Cabinets and Cabinet Sinks has just been published by Roberts & Mander Corporation, Hatboro, Pa.

The entire line is illustrated and described in this book, which is a valuable tool in planning the modern kitchen. The outstanding feature is a full-color center spread, which shows an ideal modern kitchen, completely equipped.

In addition to the catalog, a complete and easy-to-follow installation manual is also available. This manual gives simple instructions for proper installation and helpful hints in planning and laying out the modern kitchen. The book will be equally useful for architects and builders in new construction and for dealers in renovation work.

Atwell New England Manager for Dresser

The appointment of Daniel J. Atwell as New England District Manager for the sale of Dresser Products to the gas industry has been announced by H. Z. Hight, Sales Manager. Mr. Atwell will cover New Jersey and all of the New England States from the New York office of the Dresser Manufacturing Division located at 122 East 42nd Street, New York, N. Y. He will be responsible for the sale of all Dresser couplings, fittings and repair products in this area. Mr. Atwell has been associated with the company for some months, which time he spent both at the factory and in the field on special assignments.

Daniel J. Atwell

Before joining Dresser, Mr. Atwell was associated with the Pittsburgh Equitable Meter Company and gained wide acquaintance in the gas field.

Jalass Appointed on Cribben & Sexton Staff

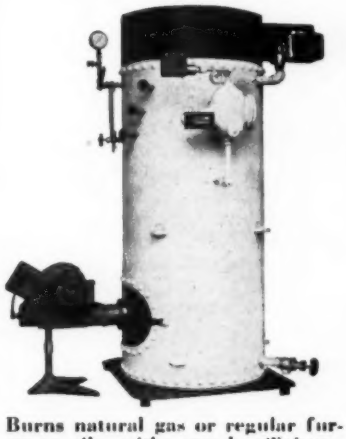
Mr. Harold E. Jalass has been appointed Assistant General Sales Manager of Cribben and Sexton Company, it was announced by John E. Bogan, Vice President in charge of sales.

Mr. Jalass came to Cribben and Sexton Company in 1917. In 1922 he joined the Sales Department, covering Chicago and supplementing other territories throughout the country. For the past fifteen years he has been District Manager for Universal Gas Ranges in Metropolitan Chicago area. He will continue in this capacity, in addition to his new duties.

Harold E. Jalass

He has conducted over 1500 point-of-sale demonstrations before groups ranging from 25 to 200 persons. In these educational meetings he has dramatically and effectively demonstrated the superiority of gas as a cooking fuel and introduced the "romance" of gas cooking.

LATTNER
GAS — OIL BOILER
3 HP to 35 HP.



Burns natural gas or regular furnace oils with equal efficiency using same burner.

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Cedar Rapids, Iowa

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The big news in the business world is Sales Training. Executives everywhere anticipate the briskest competition American markets have ever experienced. Don't be misled by false security. Start training your staff now in the modern scientific methods set forth in this set of 3 cloth-bound volumes, expressly written for the home appliance salesman. Only $4.00 per set. Order today.

THE CLEVELAND HEATER CO.

2310 Superior Avenue **Cleveland 14, Ohio**

Moecker Retires, Leeseberg is Appointed Mgr. Cleveland Div. of American Stove Company

Henry Moecker, Jr., has announced his retirement as manager of American Stove Co.'s Cleveland manufacturing division effective August 1, thereby bringing to an end a half-century of uninterrupted service.

Henry Moecker Jr.

A. W. Leeseberg

Mr. Moecker has been manager of the Cleveland plant since 1934. He began with the company at Harvey, Ill., as a bench and machine worker in 1876 and rose to the position of plant superintendent in 1920. He has been a member of the company's board of directors for many years. With Mr. Moecker's retirement there leaves another of the real pioneers of the gas range industry.

A. W. Leeseburg, formerly the production coordinator of the Cleveland manufacturing division, has been appointed manager of the Cleveland division, according to a recent announcement by Arthur Stockstrom, American Stove Company president. Mr. Leeseberg's story is that of "office boy-to-manager" in 40 years of uninterrupted service to the company. He served for many years as manager of the enameling shop, and during the war as production manager for the company's aircraft manufacture.

He is a member of the Central District Enamelers' Club; the Society for the Advancement of Management; and the Cleveland Foremen's Club.

Snider Elected President

J. R. Snider has succeeded M. A. Pooler, retired, as President and General Manager of the Tucson Gas, Electric Light and Power Co., Tucson, Ariz.

Willien with San Diego Gas & Electric Co.

Leon J. Willien has joined the staff of the San Diego Gas & Electric Co., San Diego, Calif., as research engineer. Mr. Willien was formerly engineer of the Byllesby Engineering and Management Corporation and more recently Associate Director of the Institute of Gas Technology.

Norwalk Valve Company Acquires Connelly Governor & Valve Business

The Connelly Iron Sponge & Governor Company has sold its regulator, check valve and apparatus business, including all inventory, equipment, patents and goodwill, to Norwalk Valve Company of South Norwalk, Conn.

Mr. Andrew Dolfini, who has been production manager for Norwalk Valve Company for the past three years, was formerly in charge of valve and governor manufacturing for Connelly Iron Sponge and Governor Company for many years. He will continue in charge of production. Mr. G. A. Anderson will be in charge of engineering and sales. He is a chemical engineer, trained at the University of Wisconsin, and was Superintendent of the Gas Department for the Wisconsin Public Service Corporation at Sheboygan, Wisconsin, from 1922 to 1945. W. L. Lyon, President of Gas Consumers Association, is General Manager.

Norwalk Valve Company, which was operated for a short time as a division of Allied Control Valve Company, has returned to its original owners and is now operated by Gas Consumers Association. Established in 1878, three years after the Connelly Company, Gas Consumers Association operates Gas Consumers Service in the principal cities of the United States. The combined business is directed and operated from the Norwalk Valve Company building at 33 Railroad Avenue, South Norwalk, Connecticut, with the cooperation of Gas Consumers Service branches.

Canadian Notes

Crews from the Northwestern Utilities Limited, Edmonton, Alberta, are steadily engaged in the expansion of customer gas services at Red Deer. An additional crew has been started on laying mains on down town streets in the city. The main transmission line has reached a point some miles south from Ponoka, and it is hoped that the company can complete the construction into Red Deer before the end of September.

Work on the distribution system in the expansion of the company in five new towns in this territory is being carried out as rapidly as possible. It is expected that gas will be turned on in Camrose and Wetaskiwin before the end of August.

Work on the distribution system in the Lacombe and Ponoka district is being pushed ahead and Red Deer, which is the most southern point on the route, will have its system placed in use at a little later date.

Approval has been granted by the town of Athabasca, Alberta, for a 20-year gas franchise. Athabasca is 100 miles north of Edmonton and gas will be delivered from Deca Number 2, a 15,000,000 cubic feet per day gas well which was completed in 1943 at just under 1700 feet.

The Reliable Shut-Off for Street Mains

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

CRUSE-KEMPER COMPANY
AMBLER, PENNA.

GAS HOLDERS

Low Pressure High Pressure Inspection
Purifiers Tanks Flues

Over 40 Years of Sound
Steel Plate Construction

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Gas Engineer with experience on layout and operation of manufactured gas plants and distribution systems wanted by general gas engineering organization. Reply giving details of age, education and experience. Address Box 155, c/o AMERICAN GAS JOURNAL, 53 Park Place, New York 7, N. Y.

WANTED

Gas Sales Engineer preferably with Gas Utility Experience. For sales and design of installations GAS-AIR Propane-Air Plants to Utility and Industry. Equipment now in thirty-one states. Bright future for aggressive man. Suitable salary and expenses.

Pacific Gas Corporation
630 Fifth Avenue
New York, N. Y.

WANTED TO BUY

Wanted: Domestic Gas Meters, Any Kind.

Illinois Electric & Gas Company
Murphysboro, Illinois

Gas Service Cocks

FOR SALE—100 1¼" brass body, tee head gas service cocks with 3/16" orifice drilled in plug for use on high pressure services. For price and other information write to the Newport Gas Light Company, Newport, Rhode Island.

WANTED
Conversion Burner

Gas conversion burner, 3 section, 300,000 B.T.U. per hour, maximum diameter 20". Address—Valley Cities Gas Co., 222 Desmond Street, Sayre, Pa.

THOMAS E. RATCLIFF

Thomas E. Ratcliff, 70, retired vice president and treasurer Standard Gas Equipment Corporation, died August 7th after a protracted illness. Mr. Ratcliff was a native of Hamilton, Ohio.

Mr. Ratcliff began his career in Baltimore in 1911 in the position of assistant manager of the Baltimore Gas Appliance and Manufacturing Company which later became part of the present Standard Gas Equipment Corporation. Mr. Ratcliff's first connection with the Standard Gas organization was as secretary of this company to which post be was appointed in 1924. Later he assumed the position of vice president and at the time of his retirement from the company in 1943 he was vice president and treasurer.

IRON OXIDE

I can supply you with the Crude Bog Iron Ore, used in Coke and Gas plant, as purifier.

WILLIAM VENNES
259 - 6th Avenue
Grand'Mere, Que.
Canada

Matheson, Jr., with Williams Oil-O-Matic Division

W. A. (Bill) Matheson, Jr., has been named assistant manager of contract sales in an announcement by W. A. Matheson, manager of the Williams Oil-O-Matic Division, Eureka Williams Corporation. The younger Matheson graduated from Lehigh University in 1941 with a degree of B.S. in business administration. From February to June, 1942, he worked in the Oil-O-Matic plant, leaving Bloomington in June to go to the Frankfort Arsenal in Philadelphia where he served as a civilian engineering aide until August, 1943.

In his new position, W. A. Matheson, Jr., will work with R. G. Pinkerton, manager of contract sales.

Tuggle With Honolulu Gas Co.

George B. Tuggle, until recently a Commander in the U. S. Navy, has been appointed Office Engineer of the Honolulu Gas Company. He assumed his new duties September 1.

Enameling Furnace

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it back to working heat. That procedure, he declared, is more expensive than keeping the furnace going at reduced heat until production, after temporary shutdowns, is resumed. When not working, the furnace is kept at about 1400° F.

Gas-Fired Drying Tunnel

The company operates a gas-fired drying tunnel and has the original Petr-O-Fire unit available near it for switching from gas to oil fuel in emergencies. The dryer is 8 feet wide and high by 60 feet long. Light reflectors and other manufactured articles, after passing through the pre-cleaning operations and being enamel dipped or sprayed, are carried through the drying tunnel on a conveyor and dried in tunnel temperatures varying from 250 to 400 degrees Fahrenheit. The Petr-O-Fire unit is mounted just outside the entrance to the dryer and fires into the plenum chamber which parallels the drying tunnel.

Gas Burning Box Furnace

Another purpose for which gas is used in the Smoot-Holman plant is for heating two porcelain enamel box furnaces which are considerably smaller than the U-type continuous unit. The box furnaces were built to Smoot-Holman requirements by the Ferro Enamel Corp. They are Alundum V-bottom, natural gas fired box type furnaces with 5x12 foot hearths, and are employed to supplement production at the larger furnace.

These furnaces are equipped with automatic remote control electrically functioning door lift and single charging-fork facilities which are operated by an air-lift. The charging fork also is equipped with a 1¼ air motor which is hooked up to run the fork in and out of the box furnace by hand-throttle control.

As protection against unexpected shut-downs in gas supplies, a number of large manufacturing plants in the Los Angeles area have recently installed stand-by oil burning devices for use as auxiliary firing facility for enameling furnaces, pottery and glass kilns, annealing ovens, and other equipment for which those firms normally use gas.

Among the firms which have recently installed such equipment are the O'Keefe & Merrit Co., Los Angeles manufacturers of gas ranges, for use as an auxiliary hook-up for drying enameled range and oven parts.

Testing Meters

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side of the industrial meter. Two sizes of ordinary diaphragm meters of commercial design and accuracy are used to cover the large range in sizes of the rotary meters. The smaller of these two meters has a capacity of 150 cu. ft. per hour and is used in the testing of 10″ x 30″ and smaller rotary meters. The larger diaphragm meter has a capacity of 1000 cu ft per hour and is used in the testing of the larger rotary meters. It is desirable that these meters should be equipped with observation indexes.

The brake is a simple wooden clamp that fits over an enlargement of the shaft extension of the impeller which is not directly driven by the motor and transmission system. The purpose of this brake is to supply sufficient braking force to take up all the back lash in both the meter gears and the gears in driving system.

The remaining equipment required for the field method includes a stop watch, four thermometers, one vertical water manometer, one inclined water manometer, a revolution counter and all necessary tools, pipe fittings and rubber hose required to connect the various units to the industrial meter.

Part 2 in October issue will continue with methods and computation of test.

Dealer Relations

(Continued from page 20)

little things, words and actions, going out of way to do favors, stretching a point now and then, can mean so much in winning and keeping a friend. Let's not get too bound up in our rules and regulations or our personal interpretations of things.

Conclusions

Now having answered our questions, we have put the subject together. It isn't a finished and polished job—it wasn't intended to be in this short period of time. My hope was and is, that all of us will have gained something in the process that would make the subject more tangible than most people consider it, that would provide food for thought and action, and would bring about further acceptance of a share of the responsibility of promoting the best in Dealer, Utility Relations.

This group does have a share in that responsibility—as was very definitely illustrated in a particularly serious complaint with which I came in contact recently. This was a case where a number of things pyramided and aggravated and finally a whole group of dealers got into a critical attitude. Sales policy was involved but specific incidents brought out related directly to personnel who were not tactful in handling attempts to bring about correction of what were controversial so-called "hazardous" installations and actually got drawn into unfortunate discussions between customer and dealer. Further incidents involved judging and discussing adequacy and engineering details of installations and then to cap the climax a dealer did not make a sale of an industrial burner when a serviceman, not realizing the import, designed and helped to construct a home-made burner for the customer. All in all it was a veritable tragedy of errors which resulted in personal recriminations and badly strained relations which very likely could have been avoided had diplomacy, understanding and better judgment prevailed.

There is much to be done—work that requires the individual efforts and everlasting teamwork of every man-jack in our business. The reward?—the satisfaction of a job well done; "Our ship is clean and tidy—we know who keeps it that way."

Scrap Scarce—CPA Plans Removal of Scrap Drive

Plans to obtain the aid of industry in the government's recently announced iron and steel scrap salvage drive, which is aimed at bringing the country's steel furnaces up to capacity operations and increasing the flow of many peacetime products, have been announced by the Civilian Production Administration.

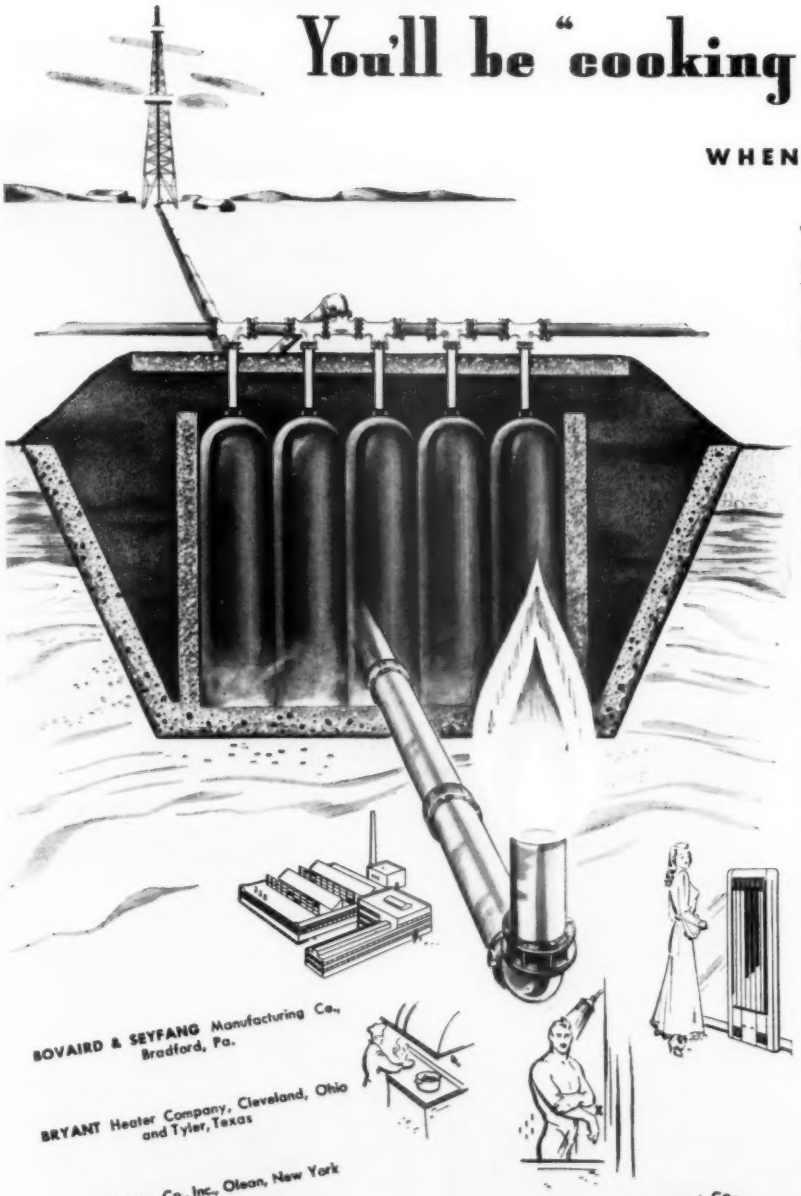
CPA expects to enlist the services of most of the 860 industrial leaders who spearheaded the salvage drives during the war years and contributed so largely to their success.

The urgent need for scrap (which normally accounts for 45 to 55 per cent of the materials entering into steelmaking) was highlighted by recent industry reports showing that leading industrial centers had less than two weeks' supply of scrap on hand while many individual steel units had only one to two days' supply left.

The war-created salvage committees were terminated by the War Production Board in October, 1944. CPA plans to reactivate these committees through a three-point program as follows: (a) A direct appeal from CPA to the chairman of each steering committee to reinstitute the committee as previously established; (b) by soliciting the support of the National Association of Manufacturers for the program and by enlisting editorial support of business papers.

You'll be "cooking with gas"...

WHEN YOU TAP THE BOTTLE



There's an economic pitfall in piping natural gas from where it is to where it's wanted. Where it's wanted, folks keep turning it on and off. But where it comes from, people have to keep it flowing in order to make the pipeline pay.

So, the new research division of Stacey Bros. Gas Construction Co., *Stacey-Dresser Engineering*, is designing storage plants to even out peaks and lulls in pipelines. Even a small installation calls for at least two hundred bottles. Each bottle—a mere ten feet in diameter and from forty to sixty feet long!

Gas drawn off the line during a lull can be liquefied and bottled until peak demand. Dresser Industries makes the compressors and pumps required to refrigerate the gas until it is liquid—achieved at the lowest temperature employed commercially—minus 260°. A million cubic feet of gas, when liquefied, amount to 12,500 gallons and can be squeezed into one bottle.

Wherever machinery is needed for gas, from the diverse equipment for drilling wells to automatic gas heating for homes, you find the engineering ingenuity of Dresser Industries.

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